BF-2300

12DI/6DO Serial and TCP/IP I/O Controller

User's Guide

2012.05.23

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1. Getting to Know your BF-2300

1.1 Introduction

BF-2300 I/O controller is designed to make your industrial devices Internet monitor and control instantly. The compact size of BF-2300 I/O controller makes them the ideal choice for connecting your devices to an IP-based Ethernet LAN, making it possible for your software to monitor and control devices anywhere over serial port (RS232 and RS485), a local LAN or the Internet.

BF-2300 I/O controller ensure the compatibility of network software that uses a standard network API (Winsock or BSD Sockets) by providing TCP Server Mode, TCP Client Mode, and UDP Mode. And using Chiyu's virtual COM drivers, software that works with COM ports can be set up to work over a TCP/IP network in no time. This excellent feature preserves your software investment and lets you enjoy the benefits of networking your serial devices instantly.

BF-2300 I/O controller support automatic IP configuration protocols (DHCP, BOOTP) and manual configuration via Chiyu's web browser console. Both methods ensure quick and effective installation. BF-2300 support special design for PPPoE + DDNS that could let your device to connect to Internet without static IP address.

1.2 Main features

Package Checklist

BF-2300 is shipped with the following items：

Standard Accessories

- 1 BF-2300 12DI/6DO I/O controller
- Document & Software CD
- Quick Installation Guide
- Product Warranty Booklet

Optional Accessories

- Power adaptor

NOTE: Notify your sales representative if any of the above items is missing or damaged.

Product Features

BF-2300 enjoys the following features：

- Make your devices monitored and controlled Internet ready
- Versatile socket operation modes, including TCP Server, TCP Client, and UDP
- Easy-to-use Windows Utility for mass installation
- Supports 10/100 Mbps Ethernet—auto detectable
- 18 channel I/O with 12 Isolated DI/6 Isolated Relay DO
- 12 Digital Input with Dry Contact
- 6 Relay Digital Output with Dry Contact
- One RS-232 port, one RS-485 port and one RJ-45 port
- Built-in 15 KV ESD protection for all serial signals
- BF-2300 has 2 KV isolation protection

Product Specifications

Hardware	CPU	16 bit CPU, 100MHz			
	Memory	256 KB ROM & 1MB SDRAM			
	Watch Dog	Support watch Dog, system never halt			
	Reset Button	Multi-function for system restart and factory default reset			
Interface	***Ethernet***				
	1 RJ-45 Port	10/100Base-T,half/full duplex, Auto Cross Over, 1.5 KV Magnetic protected			
	Serial				
	Port	Interface	Port Type	signals	protection
	COM1	RS-232	Screw Terminal	TxD,RxD,RTC,CTS,DTR,DSR,DCD,GND	15KV ESD
	COM2	RS-485	Screw Terminal	D+, D-	15KV ESD
	I/O				
	18 channel I/O	12 Isolated DI/6 Isolated Relay DO			
	Isolated Digital Input	Optical Isolation：2,500V(DC) Over-voltage Protect：70V(DC) Dry Contact			
	Relay Digital Output	Optical Isolation：2,500V(DC) Contact rating：AC：120V@0.5A；DC:30V@1A Total switching time：10msec(on:7/off:3)			
Configuration	***Ethernet***				
	Static IP/DHCP Client/PPPoE				
	Serial				
	Parity Check	None, even, odd, Mark, Space			
	Data bits	5, 6, 7, 8			
	Stop bits	1, 2			
	Flow Control	RTS/CTS, XON/XOFF			
Supported OS		Windows XP, Windows 2000, Windows NT, Windows95/98 ME, Linux, UNIX			
Protocol		TCP, IP, UDP, Telnet, ARP, DHCP, ICMP、SMTP、PPPoE、HTTP、DDNS			
Management		Support TCP/UDP Server/Client mode User name & password protected for web management			
		Built-in Http server for set up and remote management via any browser easily			
		Support backup & restore system configuration data			
		Support Windows 95/98/ME/NT/2000/XP/2003 virtual COM drivers			
Power & Environment	Power requirement	DC 9-30V ,500mA			
	Operation Temp	0℃ ~ 55℃			
	Operation Humidity	5% ~ 95%RH			
	Storage Temp	-20℃ ~ 85℃			
	Size	81X103X30 mm			
	Magnetic protected	Ethernet port 1.5 KV			
	Approval	FCC, CE			

The following are the main features of BF-2300

■ **TCP/UDP server/client support**

The BF-2300 support three types of connection: TCP server, TCP client and UDP , user can select one of types to meet application requirement.

■ **DHCP Client**

DHCP (Dynamic Host Configuration Protocol) client obtains the TCP/IP configuration at start-up from a centralized DHCP server, which means it can get IP address, an IP default gateway and DNS server.

■ **PPP Over Ethernet**

PPPoE is a protocol for connecting remote hosts to the Internet over DSL connection by simulating dial-up connection.

■ **Dynamic DNS**

With dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet.

■ **Auto-negotiating 10/100Mbps Ethernet**

The Ethernet interface automatically detects if it is on a 10 or a 100 Mbps Ethernet.

■ **IO Remote Control**

The BF-2300 provides command protocols to integrate into customer's software via TCP/IP connection to monitor or control customer's device.

■ **Alarm Generation**

With SMTP client support, you can set system to trigger alarm message via E-Mail or SMS (Short Message System) to your mobile phone.

■ **Full Network Management via Web**

This feature allows you to access or manage device through IE or Netscape on any platform. The firmware also can be upgraded via Web browser.

■ **Backup and Restore configuration**

This feature allows you to backup system configuration to a file and restores it, for the security issue, the file which backup from system is an encryption format.

■ **Firmware Upgrade**

BF-2300 support two ways of firmware upgrade: one is through Web browser such as IE or Netscape, another is through Xmoden protocol.

1.3 Applications for BF-2300

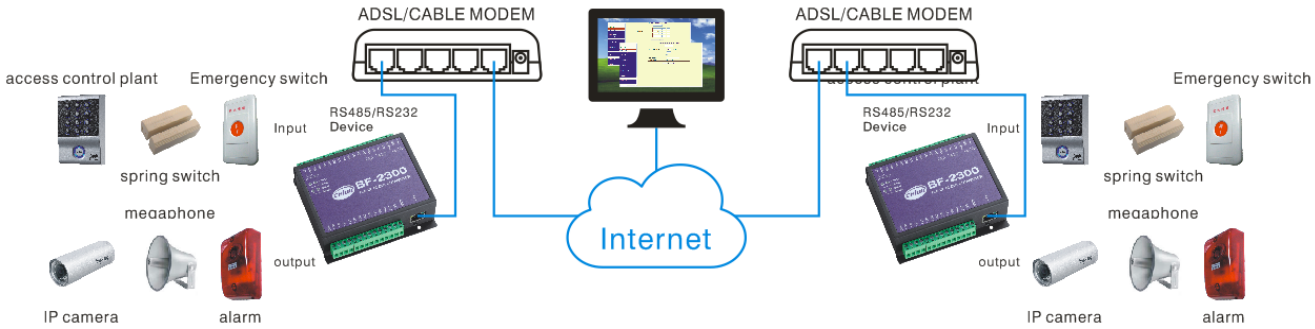


Figure 1 Standalone BF-2300's application through Internet

2. Hardware Installation & Initial Setup

2.1 Hardware Installation

BF-2300

2.2 LED status

LED	Color(s)	Activity	Desc.
Power	Red	Off	Power OFF
		Red Blinking	Booting/System Self-Test
		Red On	Device Ready
Ethernet (on the RJ-45 connector)	Link Green	Off	No Ethernet Link
		Green On	Ethernet Link established
	SPD Green	Off	10 Mbps
		Green	100 Mbps
	ACT Green	Off	No data activity
		Green Blinking	Transmitting/Receiving
Transaction	Link Green	Off	No TCP/IP session link
		Green On	TCP/IP session link established
		Green Blinking	Data Sending/Receiving between Serial and Ethernet
RS232	Green	Blinking	Data Sending/Receiving through this COM port
RS485	Green	Blinking	Data Sending/Receiving through this COM port

2.3 Initial Setup

Use this section to set up your computer to assign it a static IP address in the 192.168.0.1 to 192.168.0.254 range with a subnet mask of 255.255.255.0. This is necessary to ensure that your computer can communicate with your BF-2300.

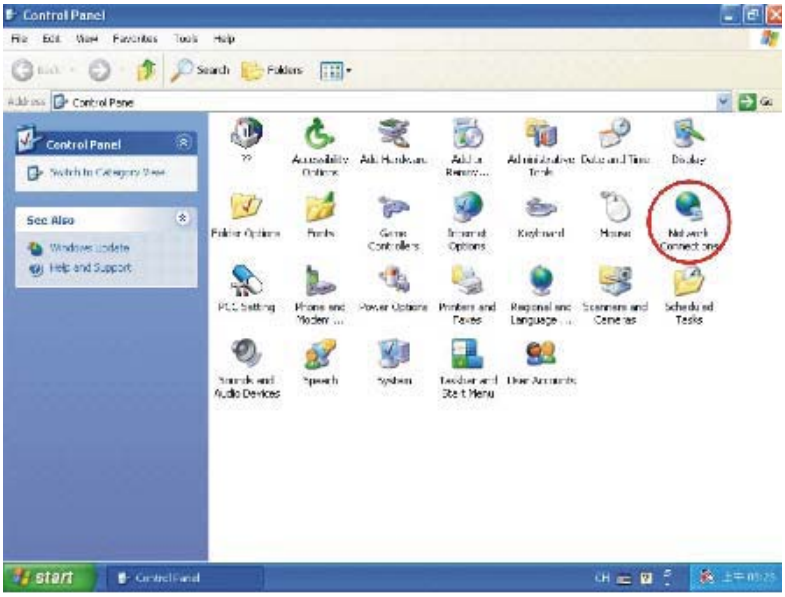
Your computer must have an Ethernet card and TCP/IP installed. TCP/IP should already be installed on computer using Windows 98/2000/XP and later operating systems.

Note: Connect a computer to BF-2300 Ethernet port directly should be with crossover Ethernet cable, if both connect to hub/switch should be with straight-through Ethernet cable.

2.3.1 Installing the TCP/IP Protocol

If you are not sure whether the TCP/IP Protocol has been installed, follow these steps to check, and if necessary, install TCP/IP onto your PCs.

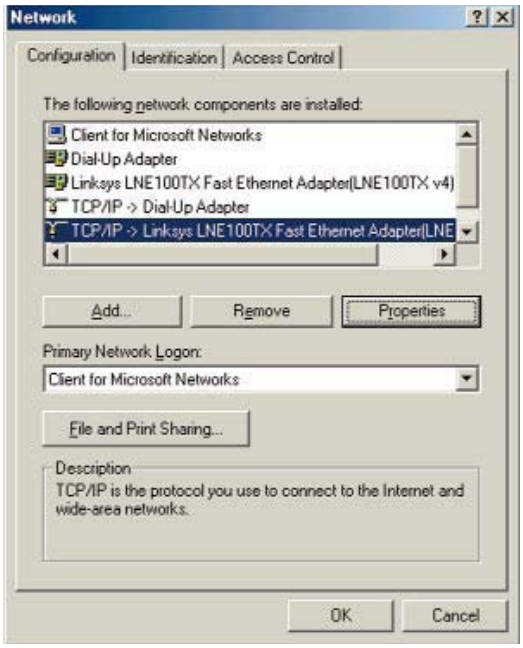
Step 1：Click the **"Start"** button. Choose **"Settings"**, then **"Control Panel"**. Double-click the **"Network Connections"** icon. Your Network window should appear as follows：



Step 2：

For **Windows 98 and Millennium**

On the **"Configuration"** tab **(if using Windows 98 and Millennium PCs)**, select the **TCP/IP** line for the applicable Ethernet adapter. Do not choose a TCP/IP entry whose name mentions PPPoE, VPN. If the word **TCP/IP** appears by itself, select that line. Click the **Properties** button.

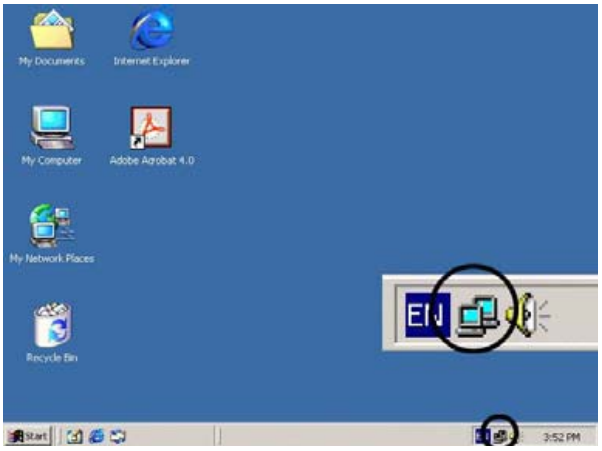


Important：

For Windows 2000 & Windows XP Setting, you will find that they differ with Windows 98/ME/NT slightly. See the following for reference.

For **Windows XP and Windows 2000**

Click the **"Local Area Connection"** icon on the lower right hand side of your desktop screen.



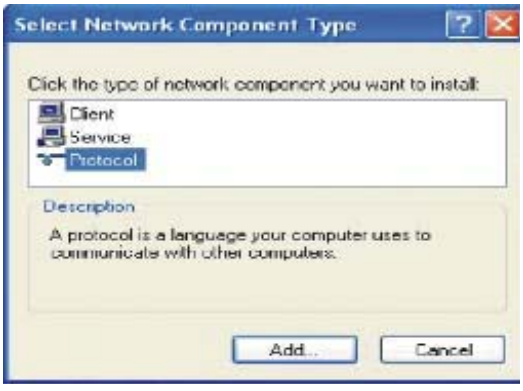
In the **"Local Area Connection Status"** window, click the **"Properties"** button then your Network window will appear.

There are two tabs, **"General" "Support"**, in the Network window.

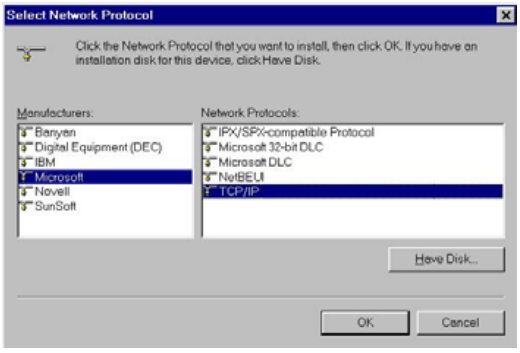
Step 3：Check whether the TCP/IP Protocol has already been installed onto your computer's Ethernet card. Note that TCP/IP Protocol can be installed for a computer's Dial-Up Adapter as well as for the Ethernet card.

- ＊ If yes, go to section 2.3.2.
- ＊ If no, click the **"Install"** button.

Step 4：Double-click **"Protocol"** in the Select Network Component Type or highlight **"Protocol"** then click **"Add"**.



Step 5：Highlight **“Microsoft”** under the list of manufacturers. Double-click **“TCP/IP”** from the list on the right or highlight **“TCP/IP”** then click **“OK”** to install TCP/IP.



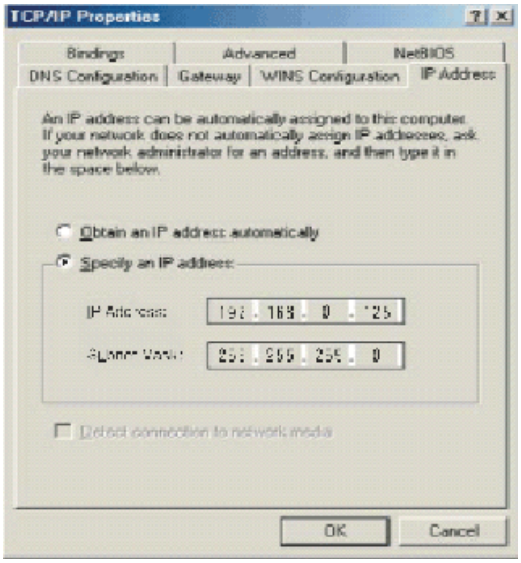
Step 6：After a few seconds, you will be returned to the Network window. The TCP/IP Protocol should now be on the list of installed network components (see 3 above).

2.3.2 Fixed IP Addresses Configuration

For **Windows 98 and Millennium**

Step 1：To set up computers with fixed IP Addresses, click the **"Properties"** button. The TCP/IP Properties window consists of several tabs. Choose the **"IP Address"** tab as shown below.

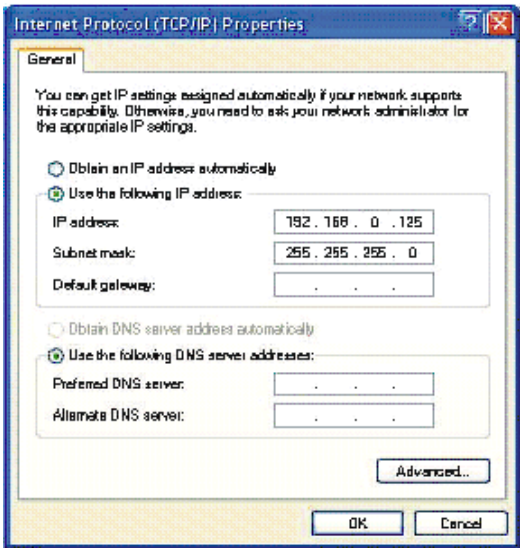
Step 2：Select **"Specify an IP address"** and enter **"192.168.0.xxx"** (the default value of BF-2300 is 192.168.0.125) in the **"IP Address"** location (where xxx is a number between 1 and 254 used by the High-Performance BF-2300 to identify each computer), and the default **"Subnet Mask" "255.255.255.0"**. Note that no two computers on the same LAN can have the same IP address.



For **Windows XP and Windows 2000**

Step 1：Make sure the box next to Internet Protocol (TCP/IP) is checked. Highlight **Internet Protocol (TCP/IP)**, and click the **Properties** button

Step 2：Select **"Specify an IP address"** and enter **"192.168.0.xxx"** (the default value of BF-2300 is 192.168.0.125) in the **"IP Address"** location (where xxx is a number between 1 and 254 used by the High-Performance BF-2300 to identify each computer), and the default **"Subnet Mask" "255.255.255.0"**. Note that no two computers on the same LAN can have the same IP address.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 125
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Click **"OK"**. to complete the TCP/IP installation.

2.3.3 Configure your BF-2300

Step 1：Open your web browser and type **http://192.168.0.125** in the browser's address box. This address is the factory set IP Address of your BF-2300. Press **"Enter"**.

Step 2：The **"Username and Password required"** prompt box will appear. Typing **"admin"** (default username) in the Username field and typing **"admin"** (default password) in the Password field. Click **"OK".** The setup screen will then appear.

Step 3：It is highly recommended you change the default username and password when you login successfully first time.

Note: Don't forget click Apply button to save your changing when you complete your configuration setting each time, the BF-2300 will restart automatically in 10 seconds with your new setting.

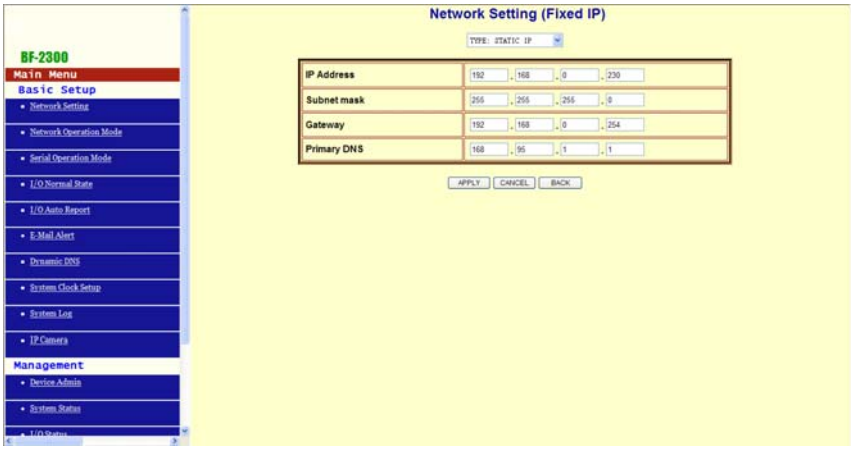
3. BF-2300 Configuration Setup

This chapter will show you how to configure BF-2300 to function in your network and gain access to your device through Intranet or Internet.

3.1 Network setting

The BF-2300 support three IP connection types: Static IP, DHCP and PPPoE. These types are listed in the drop-down menu for the IP Configuration setting. Each setup screen and available features will differ depending on what kind of IP connection types you select. Default is Static IP

Static (or Fixed) IP



IP Address

Setting	Factory Default	Necessity
E.g., 192.168.0.xxx	192.168.0.125	Required

Subnet mask

Setting	Factory Default	Necessity
E.g., 255.255.255.0	255.255.255.0	Required

Gateway

Setting	Factory Default	Necessity
E.g., 192.168.0.1	192.168.0.254	Optional

A device that interconnects networks with different, incompatible communications protocols. For correct gateway IP address information, consult the network administrator. BF-2300 need to know the IP address of the gateway device in order to communicate with the hosts outside the local network environment.

Primary DNS

Setting	Factory Default	Necessity
E.g., 168.95.1.1	168.95.1.1	Optional

The Domain Name System (DNS) is the way that Internet domain names are located and translated into Internet Protocol (IP) addresses.

When the user wants to visit a particular website, the computer asks a Domain Name System (DNS) server for the website's correct IP address, and the computer users the response to connect to the web server. DNS is the way that Internet domain names are identified and translated into IP addresses. A DNS server is a host that translates this kind of text-based domain name into the numeric IP address used to establish a TCP/IP connection.

If you are connecting through a static or fixed IP from your network environment, perform these steps：

Step 1：Enter IP address

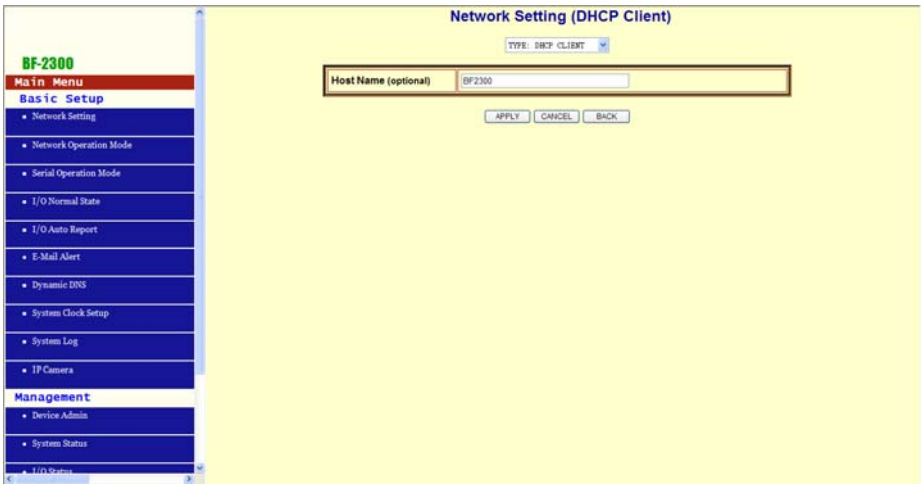
Step 2：Enter Subnet mask

Step 3：Enter Gateway IP address

Step 4：Enter Primary DNS IP address

Step 5：click Apply button

DHCP



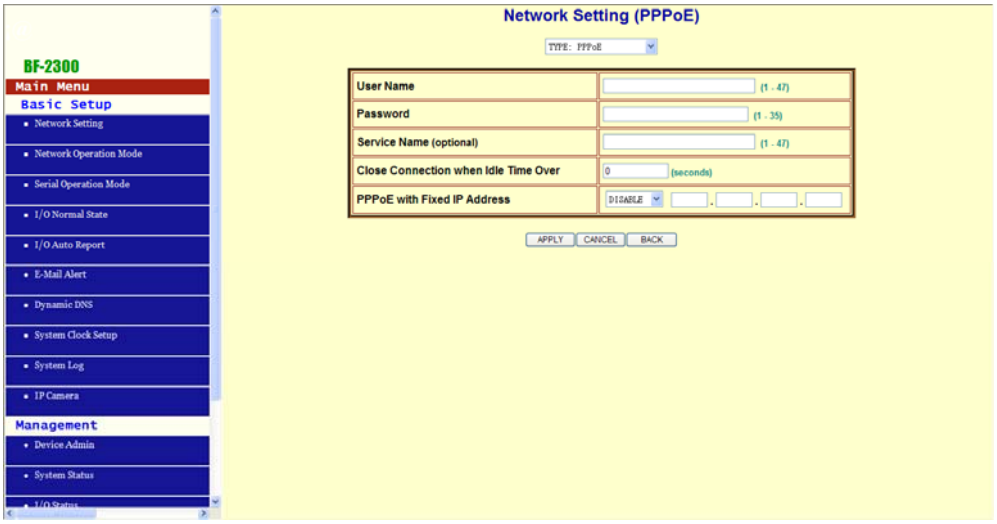
Host Name

Setting	Factory Default	Necessity
max length is 15 characters	CHIYU	Optional

If there is a DHCP Server existing in your network environment or you subscribe a CABLE service from your ISP, you can set IP configuration to DHCP to get a dynamic IP address. The **Host Name** is an optional item, depending on your DHCP Server setting.

Note 1: to gain CABLE service, you also need to change the MAC address of BF-2300 to the MAC address of register in ISP. Please refer to Chapter 4 Device Admin/Mac Address Change

PPPoE



User Name

Setting	Factory Default	Necessity
max length is 47 characters	None	Required

Password

Setting	Factory Default	Necessity
max length is 35 characters	None	Required

Service Name

Setting	Factory Default	Necessity
max length is 47 characters	None	Optional

If you subscribe a DSL service with PPPoE connection from ISP, you can set IP configuration to PPPoE to get a dynamic IP address. Your ISP will provide you the **User Name** and **Password**, some ISP will also need the **Service Name** to authenticate. But this item is optional and depending on your ISP.

Close Connection when Idle Time Over (second)

Setting	Factory Default	Necessity
0 to 65535 seconds	0	Required

If you want to keep the connection always on between BF-2300 and your ISP, then set the value of item **Close Connection When Idle Time Over** to 0, otherwise, when the idle time of no any traffic on line is over the setting value, BF-2300 will terminate this PPPoE connection.

PPPoE with Fixed IP Address

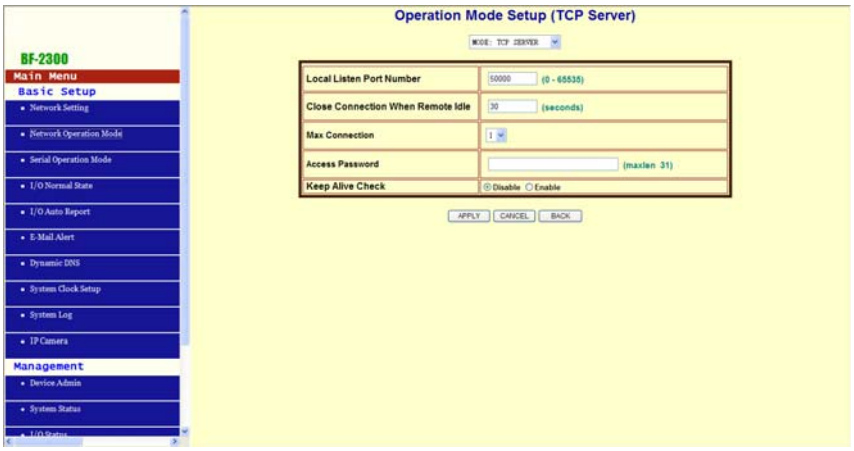
Setting	Factory Default	Necessity
Disable/Enable with IP address xxx.xxx.xxx.xxx	Disable	Required

If your ISP can provide you fixed IP address when PPPoE connection established each time, you can select **PPPoE with Fixed IP Address** as ENABLE and enter the IP address given from ISP.

3.2 Networking Operation mode

The BF-2300 support three operation mode: TCP Server, TCP Client, UDP . These modes are listed in the drop-down menu for the Operation Mode setting. Each setup screen and available features will differ depending on what kind of operation mode you select. Default is TCP Server.

TCP Server



Listen Port Number

Setting	Factory Default	Necessity
0 to 65535	50000	Required

If your device is acted as passive to accept commands from remote and the data be guaranteed to be received by peer is your concern, then you can set BF-2300 as TCP Server. Be sure the value of item **Listen Port Number** is same as your remote control application using.

Close Connection When Remote Idle

Setting	Factory Default	Necessity
0 to 65535 seconds	30	Required

If you want to keep the connection between BF-2300 and your remote control application always on, then set the value of item **Close Connection When Remote Idle** to 0, otherwise, when the idle time of no any traffic on line reach the setting value, BF-2300 will terminate this connection.

Access Password

Setting	Factory Default	Necessity
max password length is 31 characters	None	Optional

For security concern, you can input **Access Password** to protect your device, BF-2300 will authenticate whether this TCP connection is valid by this password.

Keep Alive Check

Setting	Factory Default	Necessity
Disable/Enable	Disable	Required

Disable: Disable the check of TCP connection is still alive or not.

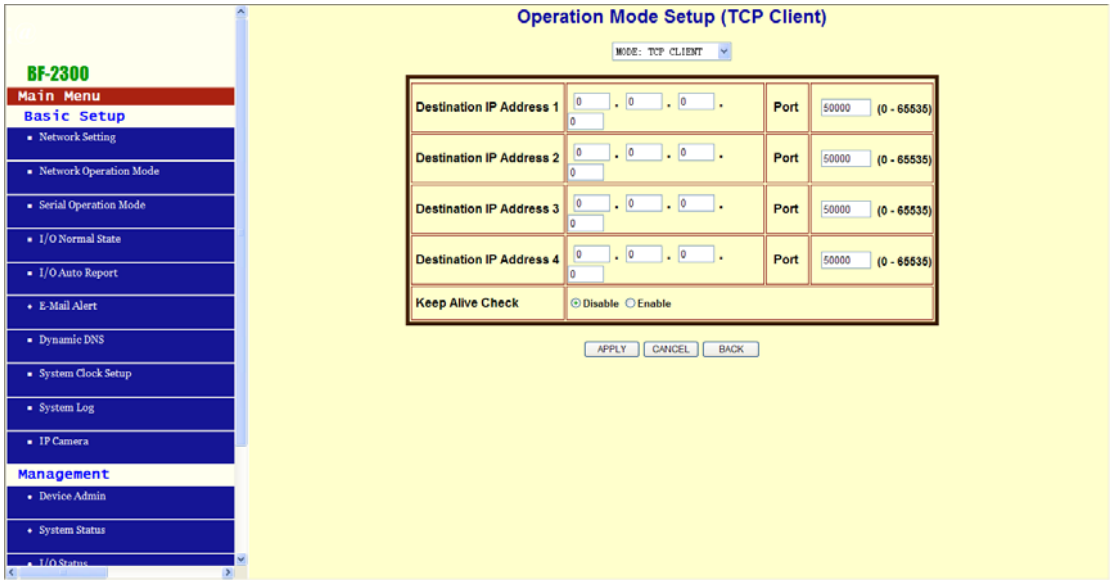
Enable: BF-2300 automatically send a Ping request to peer per each 30 seconds, the TCP connection will be terminated if no response of Ping reply from peer.

Max TCP Connection

Setting	Factory Default	Necessity
1,2,3,4	1	Required

The allowed TCP connections accept by BF-2300 simultaneously. It is usually used when user needs to receive data from different hosts simultaneously. When multiple hosts establish TCP connection to BF-2300 at the same time, it will duplicate serial data and transmit to all hosts. When data comes from Ethernet port, it is sent on first-in-first-out basis to serial port.

TCP Client



Destination IP Address1&Port

Setting	Factory Default	Necessity
E.g., 192.168.0.1	None	Required
0 to 65535	50000	Required

Destination IP Address23/4&Port

Setting	Factory Default	Necessity
E.g., 192.168.0.1	None	Optional
0 to 65535	None	Optional

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is your concern, then you can set BF-2300 as TCP Client. Be sure the value of item **Port** is same as your remote control application using and set the correct value of **Destination IP Address**.

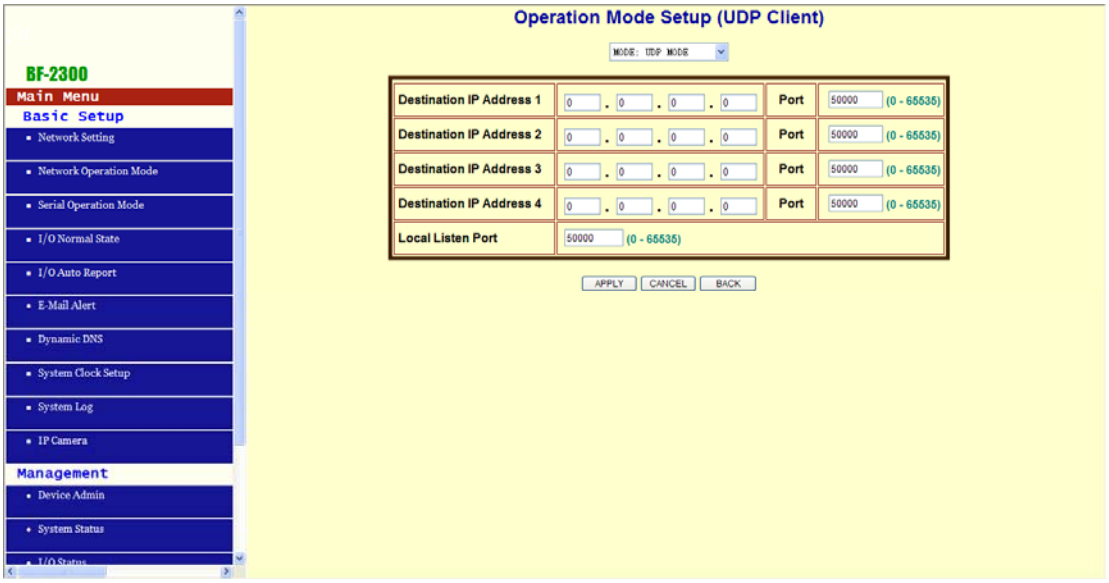
Keep Alive Check

Setting	Factory Default	Necessity
Disable/Enable	Disable	Required

Disable: Disable the check of TCP connection is still alive or not.

Enable: BF-2300 automatically send a Ping request to peer per each 30 seconds, the TCP connection will be terminated if no response of Ping reply from peer.

UDP Mode



Destination IP Address1&Port

Setting	Factory Default	Necessity
E.g., 192.168.0.1	None	Required
0 to 65535	50000	Required

Destination IP Address23/4&Port

Setting	Factory Default	Necessity
E.g., 192.168.0.1	None	Optional
0 to 65535	None	Optional

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is your concern, then you can set BF-2300 as UDP Mode. Be sure the value of item **Port** is same as your remote control application using and set the correct value of

Local Listen Port

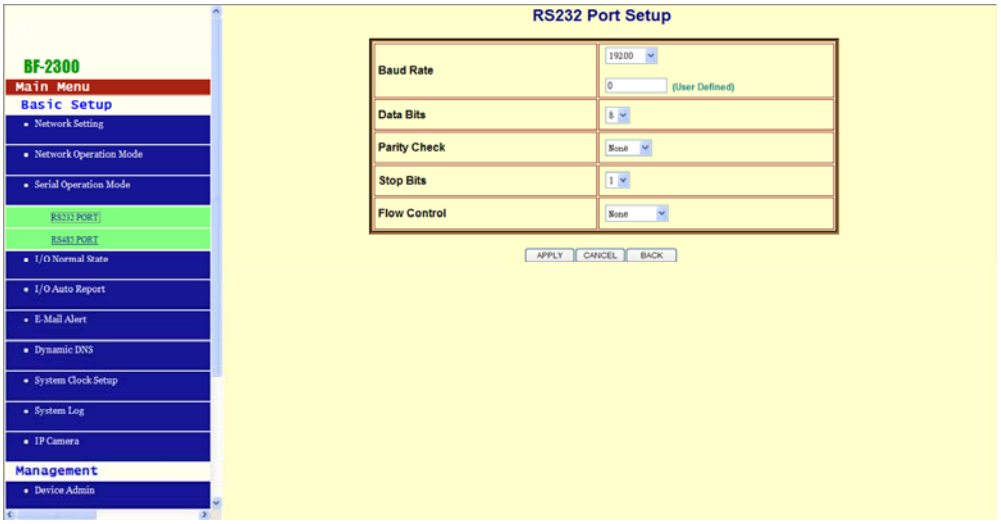
Setting	Factory Default	Necessity
0 to 65535	50000	Required

The UDP port that BF-2300 listens to, and that other devices must use to contact BF-2300.

3.3 Serial Operation Mode

The BF-2300 support two serial types: RS232, RS485. Each setup screen and available features will differ depending on what kind of Serial Types you select.

RS-232 Port Setup



Baud Rate

Setting	Factory Default	Necessity
1200bps to 230.4Kbps/ Others	19200	Required

BF-2300 support customized baud rate setting. Select **Others** in the drop-down list and input the baud rate value as you want in the field.

Data Bits

Setting	Factory Default	Necessity
5,6,7,8	8	Required

Parity Check

Setting	Factory Default	Necessity
None, even, odd	None	Required

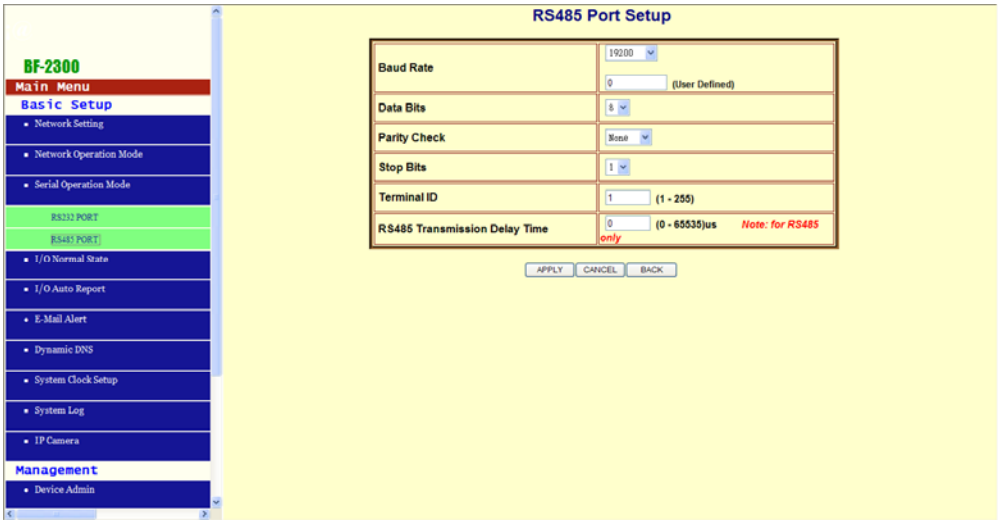
Stop Bits

Setting	Factory Default	Necessity
1,2	1	Required

Flow Control

Setting	Factory Default	Necessity
None, CTS/RTS, Xon/Xoff	None	Required

RS-485 Port Setup



Baud Rate

Setting	Factory Default	Necessity
1200bps to 230.4Kbps/ Others	19200	Required

BF-2300 support customized baud rate setting. Select **Others** in the drop-down list and input the baud rate value as you want in the field.

Data Bits

Setting	Factory Default	Necessity
5,6,7,8	8	Required

Parity Check

Setting	Factory Default	Necessity
None, even, odd	None	Required

Stop Bits

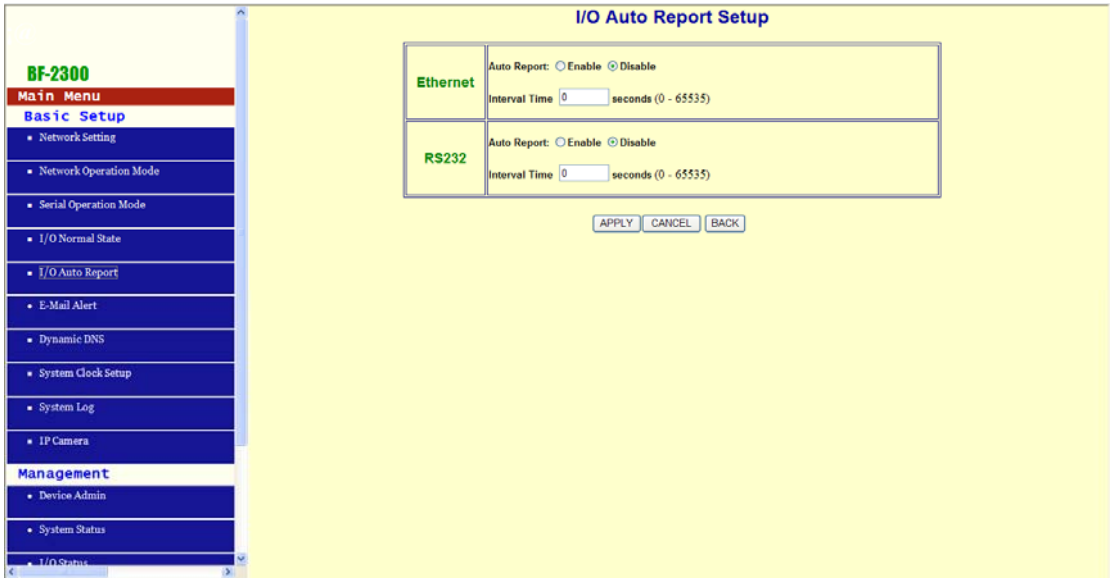
Setting	Factory Default	Necessity
1,2	1	Required

Flow Control

Setting	Factory Default	Necessity
None, CTS/RTS, Xon/Xoff	None	Required

3.4 I/O Auto Report

BF-2300 support the function of auto report I/O status to remote application separated from Ethernet, RS232 and RS485.



Ethernet

Setting	Factory Default	Necessity
Disable/Enable with the interval time in second unit	Disable	Required

RS-232

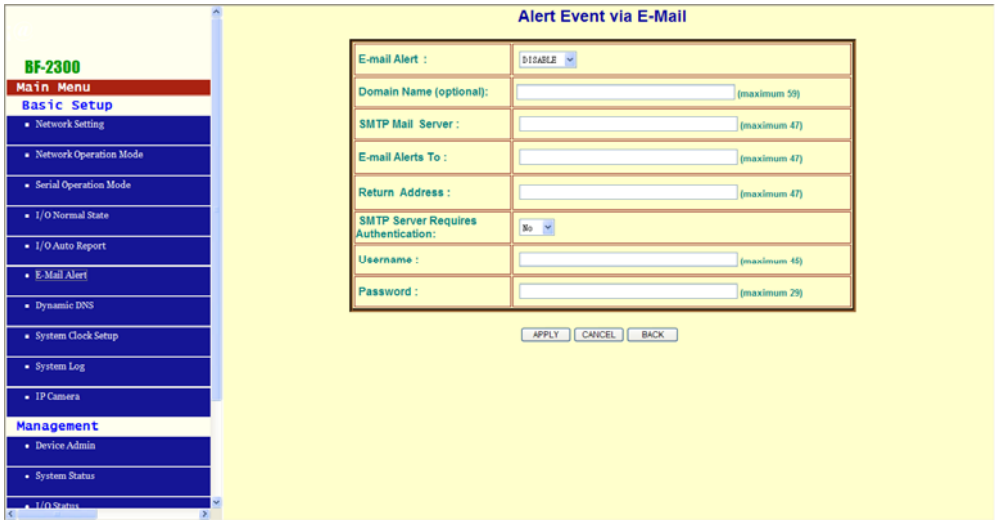
Setting	Factory Default	Necessity
Disable/Enable with the interval time in second unit	Disable	Required

RS-485

Setting	Factory Default	Necessity
Disable/Enable with the interval time in second unit	Disable	Required

3.5 E-Mail Alert

The BF-2300 supports E-Mail alarm trigger which is triggered by remote application through command protocol.



E-Mail Alert

Setting	Factory Default	Necessity
Disable/Enable	Disable	Required

Before use remote command to send E-Mail alert, this setting should be enabled first.

Domain Name

Setting	Factory Default	Necessity
Max length 59 characters	None	Optional

Some of SMTP server need you provide domain name to get its service.

SMTP Mail Server

Setting	Factory Default	Necessity
E.g., msa.hinet.net	None	Required

Max length 59 characters

E-Mail Alters To

Setting	Factory Default	Necessity
E.g., eric@chiyu-t.com.tw	None	Required

The E-Mail address you want to send.

Return Address

Setting	Factory Default	Necessity
E.g., eric@chiyu-t.com.tw	None	Required

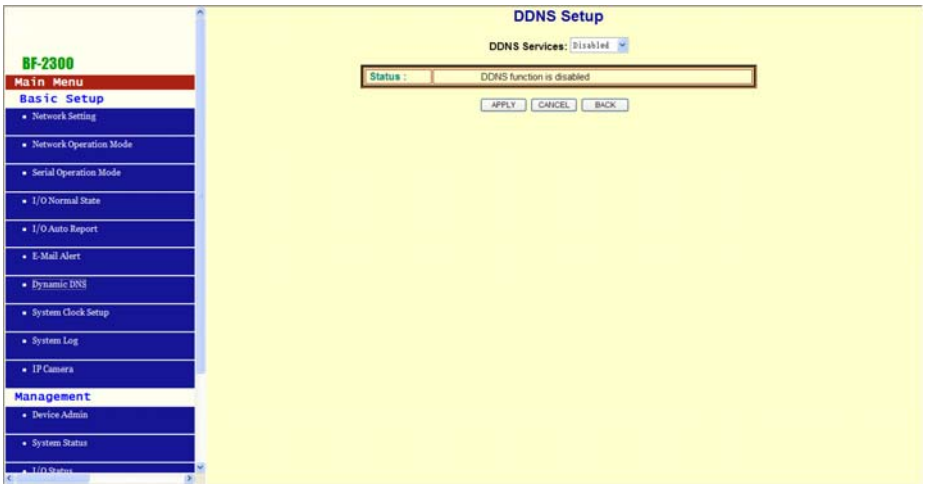
The E-Mail address you want to the e-mail is replied by receiver.

3.6 Dynamic DNS

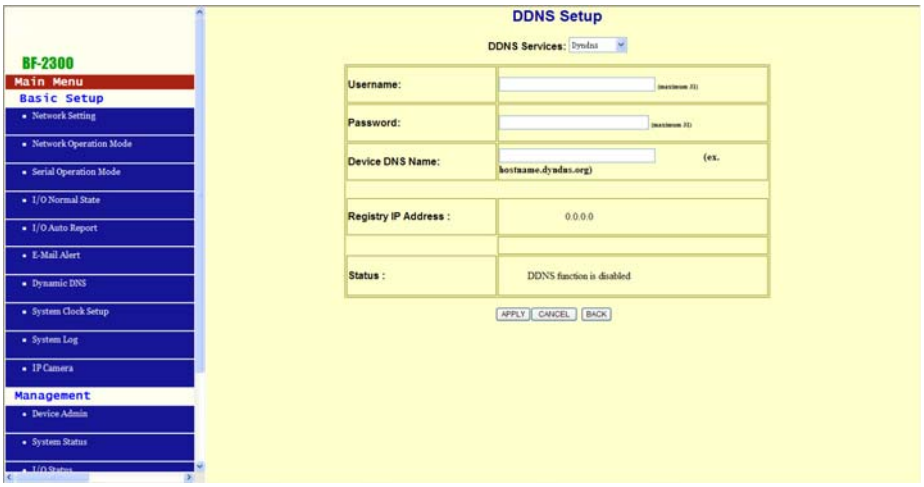
The BF-2300 offers a Dynamic Domain Name System (DDNS) feature. DDNS lets you assign a fixed host and domain name to a dynamic Internet IP address. It is useful when you want to access your device through Internet without static IP address. Before you can use this feature, you need to sign up for DDNS service at www.dyndns.org or www.tzo.com , two DDNS service provider. This service default is disabled.

If your DDNS service is provided by DynDNS.org, then select **DynDNS** in the drop-down menu. If your DDNS service is provided by TZO, then select **TZO**. The features available on the DDNS screen will vary, depending on which DDNS service provider you use. (Detail sees Appendix B)

Disabled



Dyndns.org



User Name

Setting	Factory Default	Necessity
Max length 31 characters	None	Required

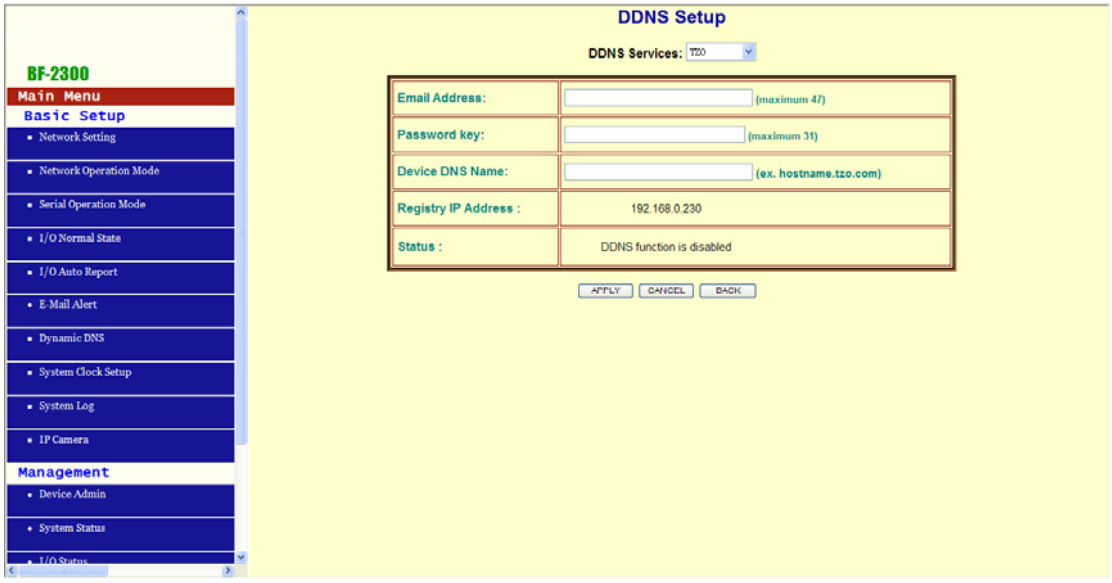
Password

Setting	Factory Default	Necessity
Max length 31 characters	None	Required

Device DNS Name

Setting	Factory Default	Necessity
E.g., chiyu.dyndns.org	None	Required

Tzo.com



Email Address

Setting	Factory Default	Necessity
E.g., eric@chiyu-t.com.tw	None	Required

Password Key

Setting	Factory Default	Necessity
Max length 31 characters	None	Required

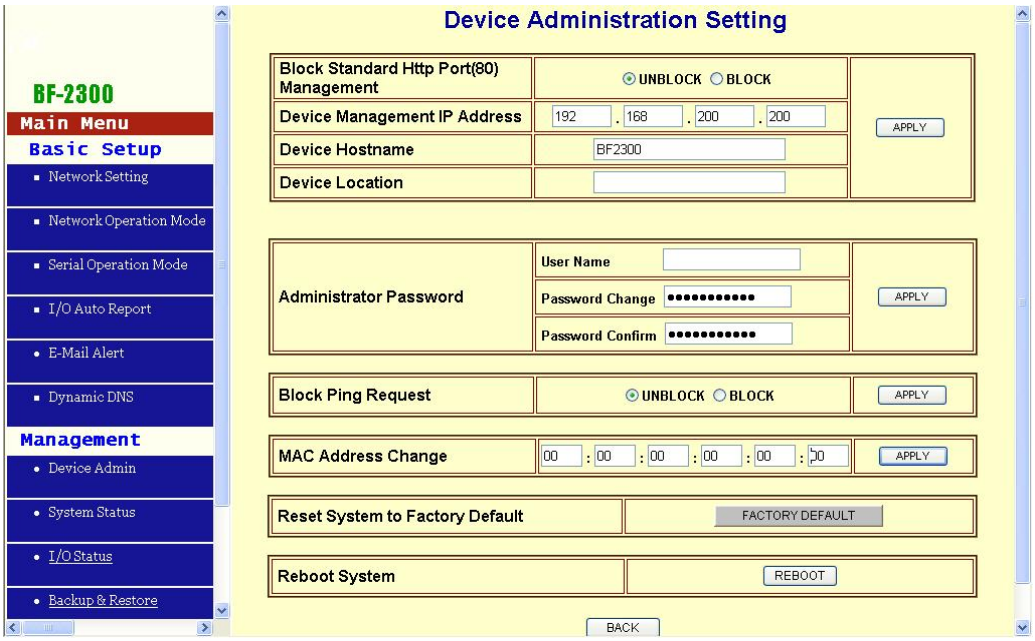
Device DNS Name

Setting	Factory Default	Necessity
E.g., chiyu.tzo.com	None	Required

4. BF-2300 Management Setup

This chapter will show you how to manage BF-2300's access setting as well as configure E-mail alert and firmware upgrade.

4.1 Device Admin



Block Standard Http Port (80) Management

Setting	Factory Default	Necessity
UNBLOCK/BLOCK	UNBLOCK	Required

If for some reason, the HTTP (80) service is blocked in your network environment and result to fail to configure or manage BF-2300, then you select **BLOCK** this function with using port 8080, instead of standard port 80. So you should enter: http://192.168.0.125:8080 in your Web browser.

Device Management IP Address

Setting	Factory Default	Necessity
E.g., 192.168.200.xxx	192.168.200.200	Optional

In case, you forgot the BF-2300's IP address you configured, this management IP can be used to connect to BF-2300 via Web browser to find what's the current IP address.

In case, you set BF-2300's IP Configuration as DHCP or PPPoE which will assign dynamic IP address to BF-2300, you also can use this management IP address to find what's the current working IP address in Intranet or Internet.

Note: If you forgot the IP address setting even management IP address, please use the broadcast utility we offer in CD to search it.

Device Hostname

Setting	Factory Default	Necessity
Max length 15 characters	CHIYU	Optional

To describe the name of BF-2300 for manage purpose.

Device Location

Setting	Factory Default	Necessity
Max length 15 characters	None	Optional

To describe the location of BF-2300 for manage purpose.

Administrator Password/User Name

Setting	Factory Default	Necessity
Max length 47 characters	admin	Required

Administrator Password/Password

Setting	Factory Default	Necessity
Max length 35 characters	admin	Required

Administrator Password/Password Confirm

Setting	Factory Default	Necessity
Max length 35 characters	None	Required

To ensure the BF-2300's security, you will be asked for your password when you access the BF-2300's Web-based Utility.

- **User Name**：Enter the user name to the one of your choice.
- **Password**：t is recommended that you change the default password to the one of your choice.
- **Password Confirm**：Re-enter the BF-2300's new Password to confirm it.

Block Pin Request

Setting	Factory Default	Necessity
UNBLOCK/BLOCK	UNBLOCK	Required

To prevent hacker intruding your network, check the **BLOCK** option to enable this function to reject the PING requests from Internet.

MAC Address Change

Setting	Factory Default	Necessity
E.g., 00.0e.e3.10.20.30	None	Optional

The BF-2300's MAC address can be changed from the original values if necessary. Some ISPs require users to change the MAC address to a registered one when users change their access equipment. (Detail sees Appendix B)

Reset System to Factory Default

Setting	Factory Default	Necessity
None	None	Optional

Click **"Apply"**, if you want to return all the BF-2300's current settings to its factory default. Note: do not restore the factory defaults unless it is absolutely necessary.

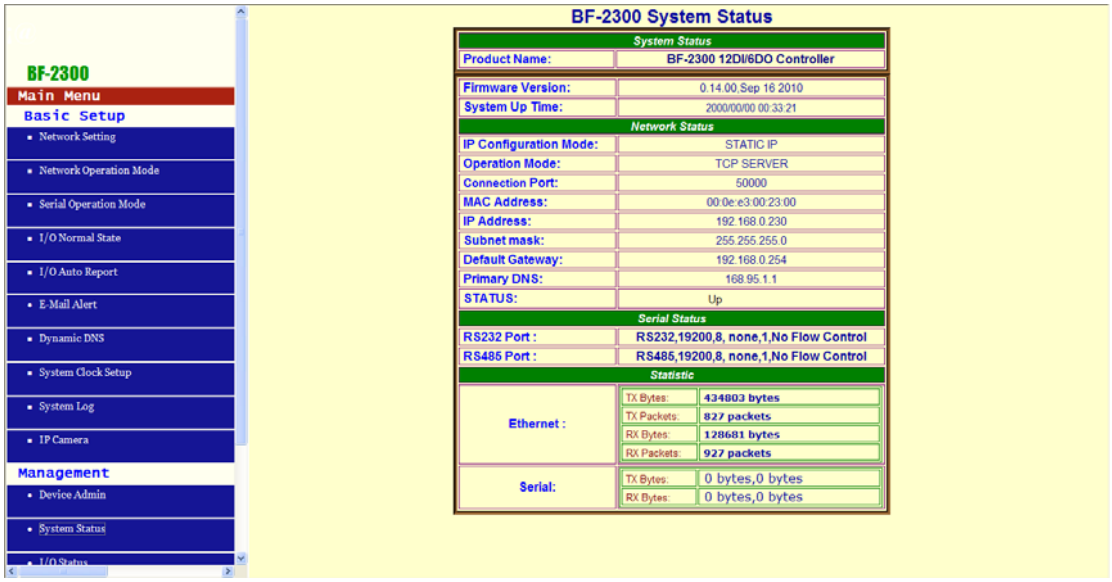
Reboot System

Setting	Factory Default	Necessity
None	None	Optional

Click **"Apply"**, if you want to clear a connection, reboot, and re-initialize the unit without affecting any of your configuration setting.

4.2 System Status

This screen shows the BF-2300's system current status. All of the information provided is read-only.



Product Name：the product model name of this BF-2300.
Firmware Version：the installed version of the firmware.
System up Time：the time of system from start up to current.
Management IP Address：the current setting of management IP.

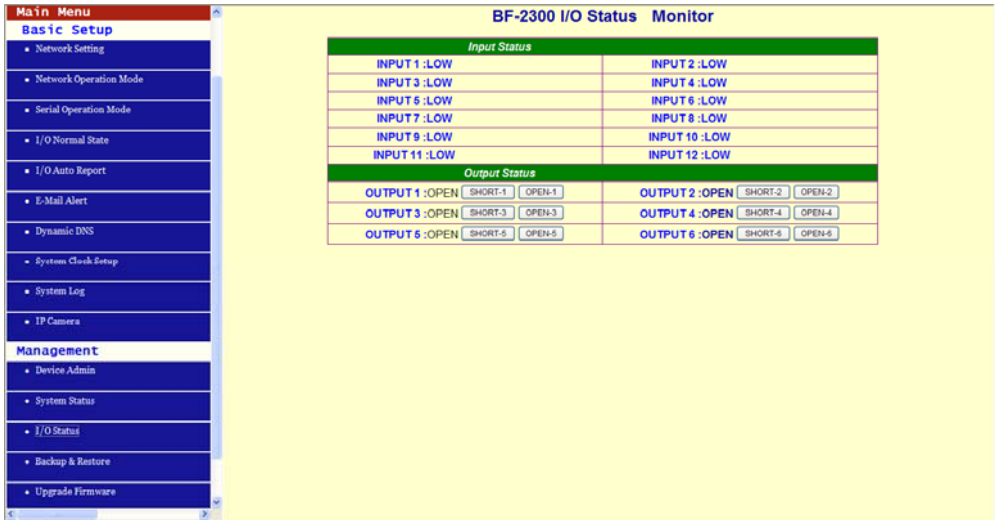
Ethernet Status：the BF-2300's IP Configuration, MAC address, IP address, subnet mask, default gateway IP address, primary DNS IP address and current connection status.

Serial Status：the BF-2300's setting in serial type for each COM Port

Statistic：the transmission and receive bytes and packets count in Ethernet and Serial port separately.

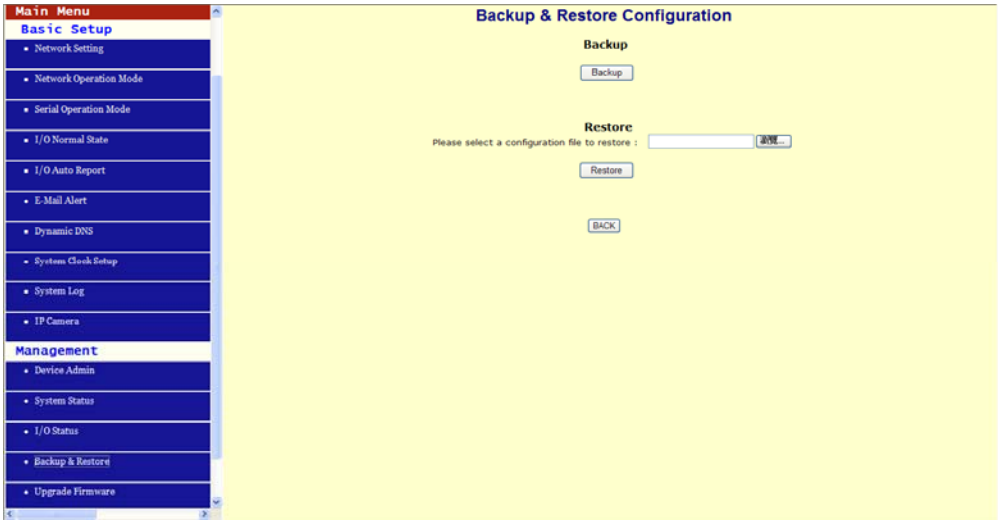
4.3 I/O Status

This screen shows the BF-2300's current I/O status. All of the information provided is read-only.



4.4 Backup and Restore

This function allows you to save BF-2300's configuration as backup, or retrieve the configuration file you saved before to turn the setting back.

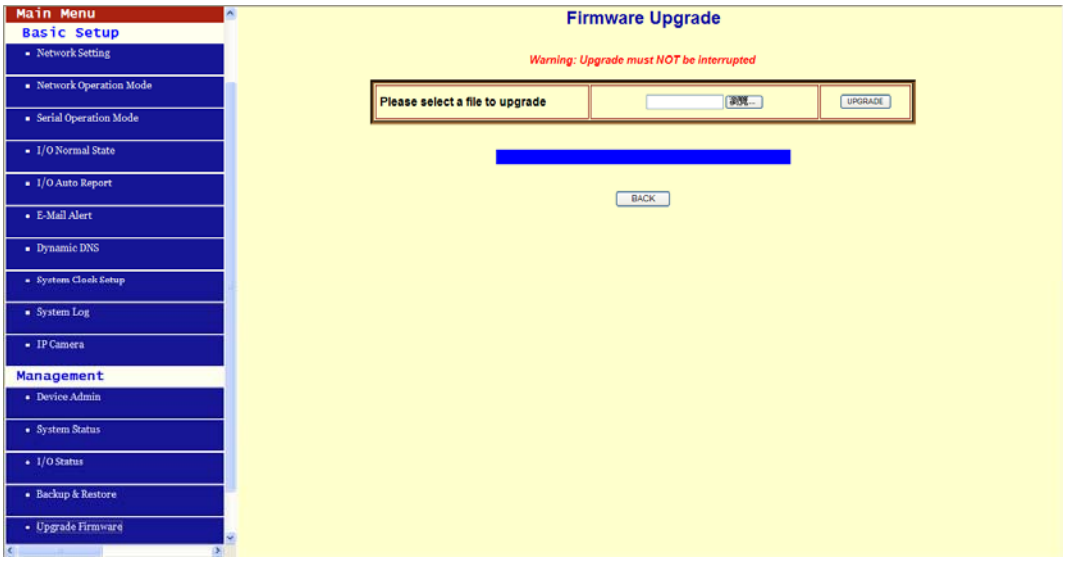


- **Backup**：Click "Backup" button save the current configuration as a backup file in your hard disk.
- **Restore**：Enter path of the configuration file you saved on the PC. You can click "Browse" to view the folders and select the file. Click "Restore" to retrieve it.

Note: the sub-name of file you retrieve must be ".cfg"

4.5 Upgrade Firmware

This function allows you to upgrade the latest version firmware to keep your BF-2300 up-to-date. Before you upgrade the firmware, you have to get the latest firmware and save it on the PC you use to configure the BF-2300.



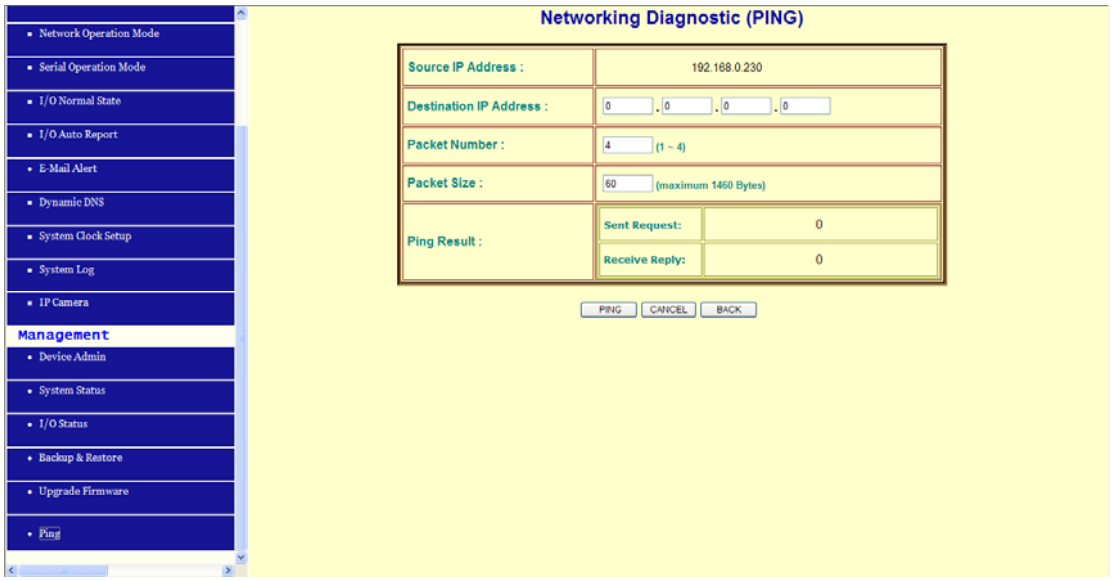
Browse：To select a file to upgrade, you have to enter path of the latest firmware you saved on the PC. You can choose **"Browse"** to view the folders and select the firmware.

Upgrade：After you enter or select the path, click **"Upgrade"** to start the firmware upgrade process.

Note: don't power off the router during the firmware upgrading, otherwise the incompletion of firmwareupgrading will cause serious damage to the integrity of the BF-2300's firmware that will lead to fail toboot the BF-2300 again.

4.6 Ping

This function allows you to test the connection between BF-2300 and LAN or between BF-2300 and Internet.



Source IP Address：the current BF-2300's IP address (Read Only).

Destination IP Address：the IP Address of destination device you want to ping.

Packet Number：the packet numbers you wish to use to ping the destination device. The maximum numbers are **4**.

Packet Size：the numbers of packet size you wish to use to ping the destination device. The maximum packet sizes are **1400**.

Ping Result：The result will show the numbers of sending packet, numbers of packet receiving (Read Only).

5. Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LEDs turn on when you turn on the BF-2300	Make sure that you have correct power connected to BF-2300 and plugged in to an appropriate power source. Check all cables connections. If the LEDs still do not turn on, you may have a hardware problem. In this case, you should contact your local vendor.
Can not access BF-2300 from Ethernet	Check cable connection between BF-2300 and computer or hub. Ping BF-2300 from computer. Make sure your computer Ethernet card is installed and functioning properly.
Can not ping any computer on the LAN	If the 10/100M LED are off, check the cable connection between BF-2300 and your computer. Verify that the IP address and subnet mask of the B-480 and computer are in the same IP address range.
Can not access BF-2300 from Serial	Check the Serial cable connection between BF-2300 and your device. Verify that the BF-2300 setting of Serial type is same as your device and make sure the hardware jumper is in the correction position.

◆ Appendix A: DIO Command Protocol

In this appendix the DIO command protocol is described here to let customer's remote management software to access Digital I/O state through Ethernet network by a specific TCP/UDP port(default is 50000) ,RS232 and RS485.

Command Packet Format：

Length(Bytes)	2	2	32	32	2	1
	Start Flag	Command	Data1	Data2	End Flag	CRC

Ethernet

Send command to BF-2300 by one of three ways (TCP Server/TCP Client/UDP Mode)

Serial

Send command to BF-2300 by RS232 and RS485

Return Packet Format：

Length(Bytes)	2	2	32	32	2	1
	Start Flag	Command Status	Data1	Data2	End Flag	CRC

The BF-2300 returns by Return packet. You can get command status to know the result after sending command packet and from Data1 and Data2 to know current I/O state.

Note：

Start Flag: 0xF0F0

End Flag: 0xF0F0

Command Status：the definition of command code is as following

0x0002 – ACK of Read Digital I/O state

0x0004 – ACK of Trigger Digital I/O

0x0006 – ACK of E-mail Alarm Trigger

0x0010 – Report current Digital I/O state (If Auto Report I/O Status is enabled, you will receive this report packet from BF-2300)

0xFFFC – Flag error, incorrect Start Flag or End Flag received in command packet

0xFFFD – Length error, the length of command packet is invalid

0xFFFE – CRC error, incorrect CRC value

0xFFFF – Command error, no such command

CRC value = 0 – total sum from field of 'Start Flag" to "End Flag"

The format of each command code is as following：

1. Read Digital I/O state

Length(Bytes)	2	2	32	32	2	1
	0xF0F0	0x0001	Xxx(don't care)	Xxx (don't care)	0xF0F0	CRC

Return Successful Packet

Length(Bytes)	2	2	32	32	2	1
	0xF0F0	0x0002	Data1	Data2	0xF0F0	CRC

Data1

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
IN-1	IN-2	IN-3	IN-4					reserved	reserved

IN-1: state of IN1, 0 for SHORT, 1 for OPEN
IN-2: state of IN2, 0 for SHORT, 1 for OPEN
IN-3: state of IN3, 0 for SHORT, 1 for OPEN
|
IN-12: state of IN12, 0 for SHORT, 1 for OPEN

Data2

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
OUT-1	OUT-2	OUT-3	OUT-4					reserved	reserved

OUT-1: state of OUT1, 0 for SHORT, 1 for OPEN
OUT-2: state of OUT2, 0 for SHORT, 1 for OPEN
OUT-3: state of OUT3, 0 for SHORT, 1 for OPEN
|
OUT-6: state of OUT6, 0 for SHORT, 1 for OPEN

2. Trigger Digital I/O

Length(Bytes)	2	2	32	32	2	1
	0xF0F0	0x0003	Data1	Xxx (don't care)	0xF0F0	CRC

Data1

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
OUT-1	OUT-2	OUT-3	OUT-4					reserved	reserved

OUT-1: the value you want to write into OUT1, 0 for SHORT, 1 for OPEN
OUT-2: the value you want to write into OUT2, 0 for SHORT, 1 for OPEN
OUT-3: the value you want to write into OUT3, 0 for SHORT, 1 for OPEN

OUT-3: the value you want to write into OUT3, 0 for SHORT, 1 for OPEN

Return Successful Packet

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0004**	**Xxx (don't care)**	**Xxx (don't care)**	**0xF0F0**	**CRC**

3. E-mail Alarm Trigger

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0005**	**Alarm Message Description**		**0xF0F0**	**CRC**

Alarm Message Description：string of alarm message by customer attach and BF-2300 send this content by e-mail

Return Successful Packet

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0006**	**Xxx (don't care)**	**Xxx (don't care)**	**0xF0F0**	**CRC**

4. Auto Report Current I/O State Packet (auto sending from BF-2300)

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0010**	**Data1**	**Data2**	**0xF0F0**	**CRC**

Data1

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
IN-1	IN-2	IN-3	IN-4					reserved	reserved

IN-1: state of IN1, 0 for SHORT, 1 for OPEN
IN-2: state of IN2, 0 for SHORT, 1 for OPEN
IN-3: state of IN3, 0 for SHORT, 1 for OPEN
|
IN-12: state of IN12, 0 for SHORT, 1 for OPEN

Data2

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
OUT-1	OUT-2	OUT-3	OUT-4					reserved	reserved

OUT-1: state of OUT1, 0 for SHORT, 1 for OPEN
OUT-2: state of OUT2, 0 for SHORT, 1 for OPEN
OUT-3: state of OUT3, 0 for SHORT, 1 for OPEN
|
OUT-6: state of OUT6, 0 for SHORT, 1 for OPEN

◆ Appendix B: Hardware Reset Button

BF-2300 provides a hardware reset button with multi-functions as below:

Reset Button

Mode	Action	Result
System in working mode	Push reset button one time	System restart right away
	Keeping push reset button 2-3 seconds	System reset to factory default
System power on	Push reset button one time	System reset to factory default
	Keeping push reset button 2-3 seconds	System running in boot loader and waiting for firmware upgrade by Xmoden.

◆ Appendix C: DDNS

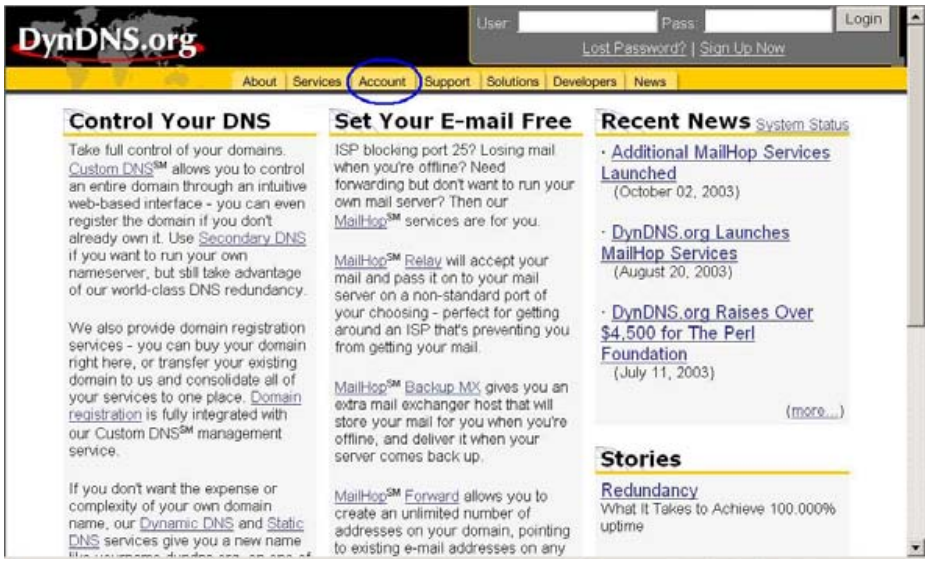
Internet actually runs on IP Addresses which are numerical order, for example “63.208.196.100”. These IP Address identify the location of each device connected to Internet. However, the human brain does not easily remember this numbering system, so a system that allocate domain name such as “www.dyndns.org” provides an easier method. If you type “63.208.196.100” or “www.dyndns.org” in the web browser’s address bar, the browser will show the same web page. This is because both methods relate to the same web server. The **“Domain Name Servers”** used to manage the Internet will translate “www.dyndns.org” into the IP Address “63.208.196.100” in order to allow your browser to find the web server and display the correct web page in your browser.

If your “IP Configuration”, as shown in 3.2 section, is “PPPoE”, or “DHCP” with dynamic IP address assigned by ISP, your IP address may change each time you initiate the connection to your ISP. The DDNS function will help to map your IP address to your domain name when your ISP assigns a new dynamic IP Address.

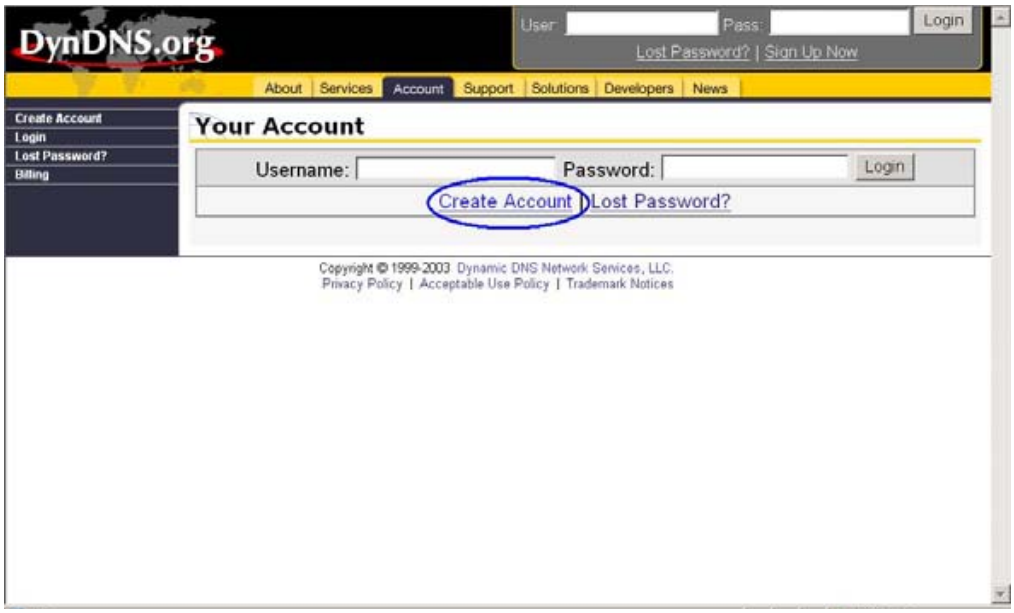
Note that this DDNS function acts as the client appliance of DDNS service and is only able to be use in conjunction with the service provided by DynDNS.org and TZO.com. Before you begin using this function, you will need to apply to DynDNS.org or TZO.com to be able to use the service. Please visit www.dyndns.org or www.tzo.com for further information.

How to register from Dyndns.org

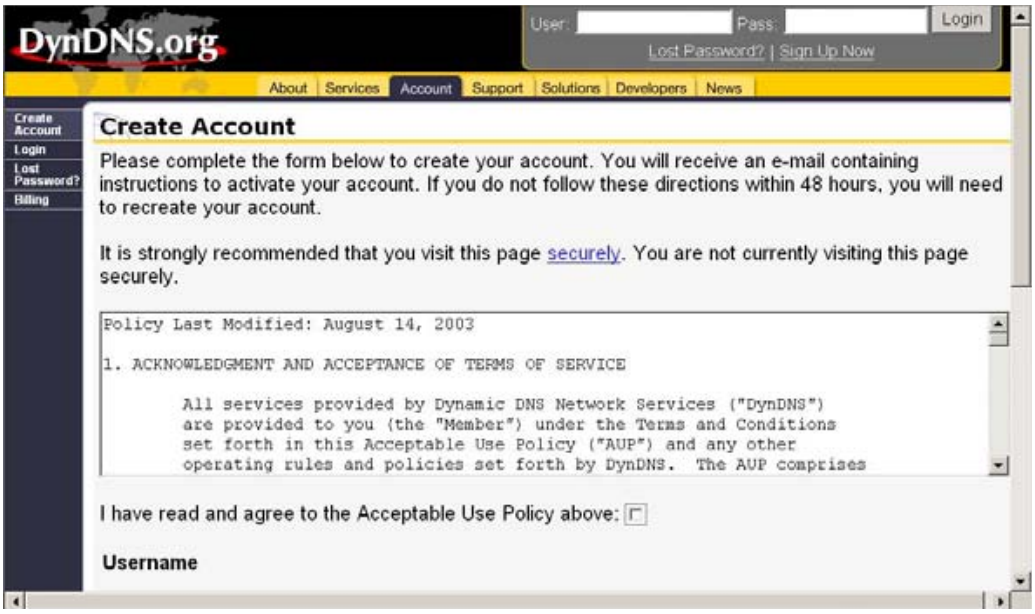
Step 1：Enter the web side www.dyndns.org in Browser, click the tab of Account.


DynDNS.org
User
Pass
Login
Lost Password? | Sign Up Now
About
Services
Account
Support
Solutions
Developers
News
Control Your DNS
Take full control of your domains. Custom DNS℠ allows you to control an entire domain through an intuitive web-based interface - you can even register the domain if you don't already own it. Use Secondary DNS if you want to run your own nameserver, but still take advantage of our world-class DNS redundancy.
We also provide domain registration services - you can buy your domain right here, or transfer your existing domain to us and consolidate all of your services to one place. Domain registration is fully integrated with our Custom DNS℠ management service.
If you don't want the expense or complexity of your own domain name, our Dynamic DNS and Static DNS services give you a new name
Set Your E-mail Free
ISP blocking port 25? Losing mail when you're offline? Need forwarding but don't want to run your own mail server? Then our MailHop℠ services are for you.
MailHop℠ Relay will accept your mail and pass it on to your mail server on a non-standard port of your choosing - perfect for getting around an ISP that's preventing you from getting your mail.
MailHop℠ Backup MX gives you an extra mail exchanger host that will store your mail for you when you're offline, and deliver it when your server comes back up.
MailHop℠ Forward allows you to create an unlimited number of addresses on your domain, pointing to existing e-mail addresses on any
Recent News System Status
· Additional MailHop Services Launched
(October 02, 2003)
· DynDNS.org Launches MailHop Services
(August 20, 2003)
· DynDNS.org Raises Over $4,500 for The Perl Foundation
(July 11, 2003)
(more...)
Stories
Redundancy
What It Takes to Achieve 100.000% uptime

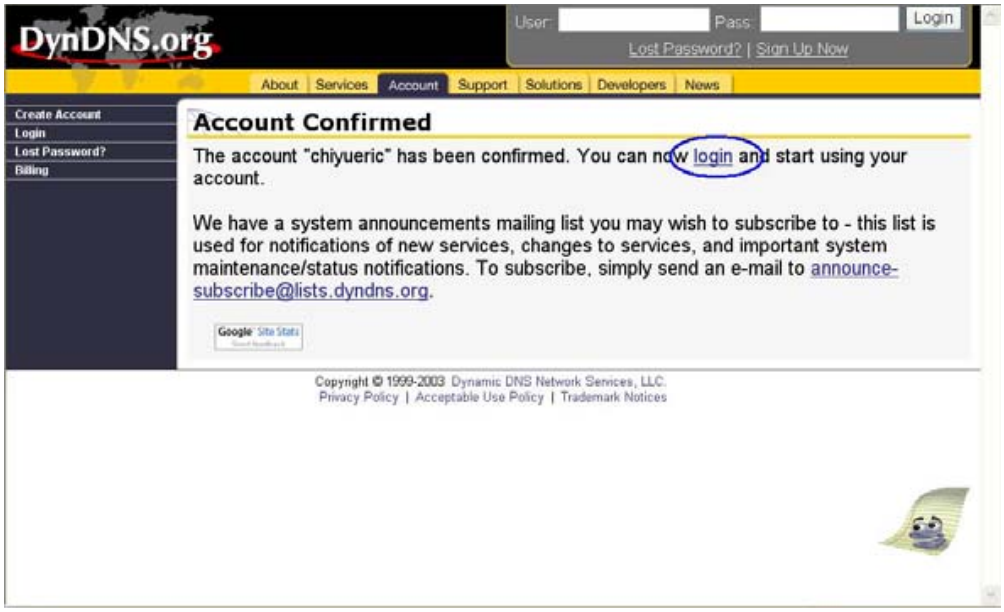
Step 2：click Create Account.



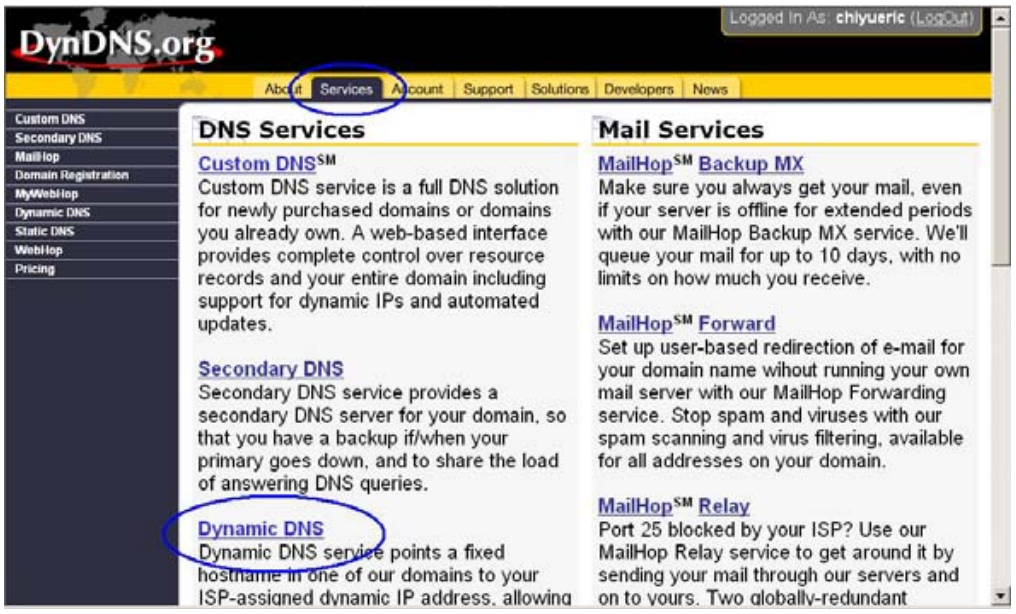
Step 3：Fill the field of Username , E-mail and Password. You will receive an e-mail containing instructions to activate your account.


DynDNS.org
User:
Pass:
Login
Lost Password? | Sign Up Now
About
Services
Account
Support
Solutions
Developers
News
Create Account
Login
Lost Password?
Billing
Create Account
Please complete the form below to create your account. You will receive an e-mail containing instructions to activate your account. If you do not follow these directions within 48 hours, you will need to recreate your account.
It is strongly recommended that you visit this page securely. You are not currently visiting this page securely.
Policy Last Modified: August 14, 2003
1. ACKNOWLEDGMENT AND ACCEPTANCE OF TERMS OF SERVICE
All services provided by Dynamic DNS Network Services ("DynDNS") are provided to you (the "Member") under the Terms and Conditions set forth in this Acceptable Use Policy ("AUP") and any other operating rules and policies set forth by DynDNS. The AUP comprises
I have read and agree to the Acceptable Use Policy above:
Username

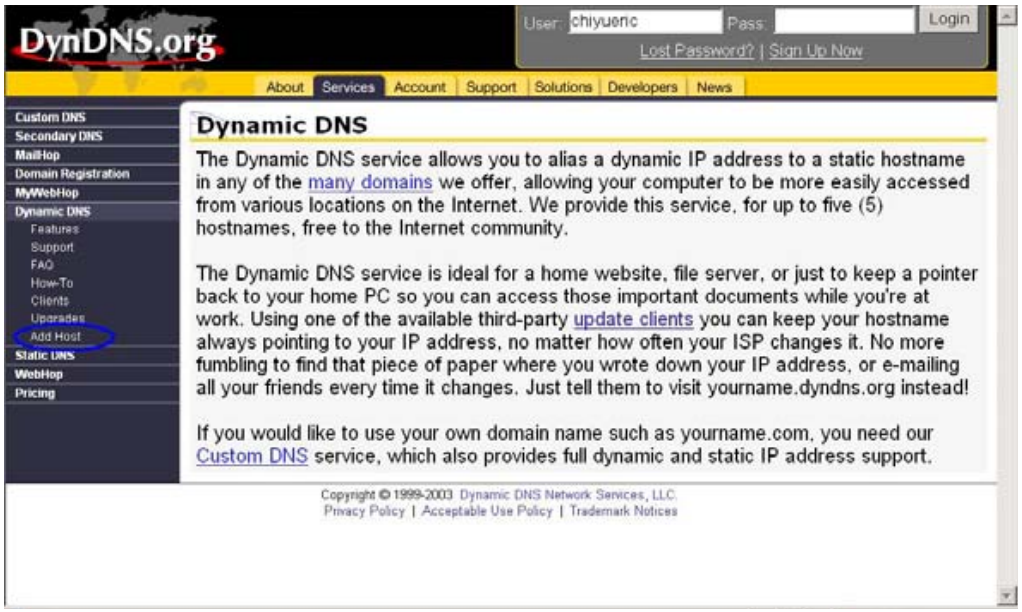
Step 4：Once you receive the confirmed e-mail, login with your Username and Password.


DynDNS.org
User:
Pass:
Login
Lost Password? | Sign Up Now
About
Services
Account
Support
Solutions
Developers
News
Create Account
Login
Lost Password?
Billing
Account Confirmed
The account "chiyueric" has been confirmed. You can now login and start using your account.
We have a system announcements mailing list you may wish to subscribe to - this list is used for notifications of new services, changes to services, and important system maintenance/status notifications. To subscribe, simply send an e-mail to announce-subscribe@lists.dyndns.org.
Copyright © 1999-2003 Dynamic DNS Network Services, LLC.
Privacy Policy | Acceptable Use Policy | Trademark Notices

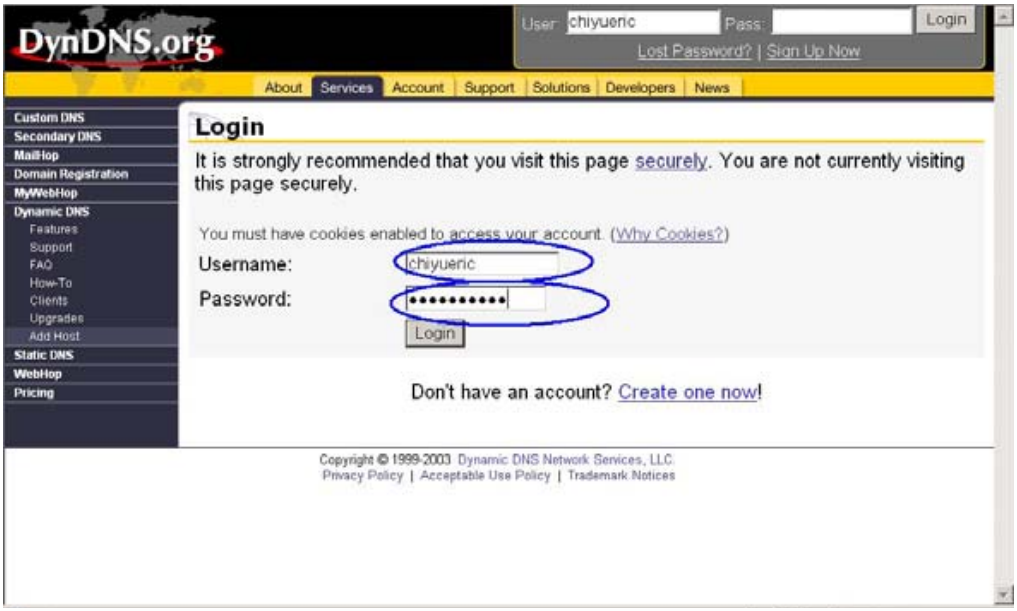
Step 5：Click the tab of Services, then click Dynamic DNS.


DynDNS.org
Logged In As: chiyueric (LogOut)
About
Services
Account
Support
Solutions
Developers
News
Custom DNS
Secondary DNS
MailHop
Domain Registration
MyWebHop
Dynamic DNS
Static DNS
WebHop
Pricing
DNS Services
Custom DNS℠
Custom DNS service is a full DNS solution for newly purchased domains or domains you already own. A web-based interface provides complete control over resource records and your entire domain including support for dynamic IPs and automated updates.
Secondary DNS
Secondary DNS service provides a secondary DNS server for your domain, so that you have a backup if/when your primary goes down, and to share the load of answering DNS queries.
Dynamic DNS
Dynamic DNS service points a fixed hostname in one of our domains to your ISP-assigned dynamic IP address, allowing
Mail Services
MailHop℠ Backup MX
Make sure you always get your mail, even if your server is offline for extended periods with our MailHop Backup MX service. We'll queue your mail for up to 10 days, with no limits on how much you receive.
MailHop℠ Forward
Set up user-based redirection of e-mail for your domain name wihout running your own mail server with our MailHop Forwarding service. Stop spam and viruses with our spam scanning and virus filtering, available for all addresses on your domain.
MailHop℠ Relay
Port 25 blocked by your ISP? Use our MailHop Relay service to get around it by sending your mail through our servers and on to yours. Two globally-redundant

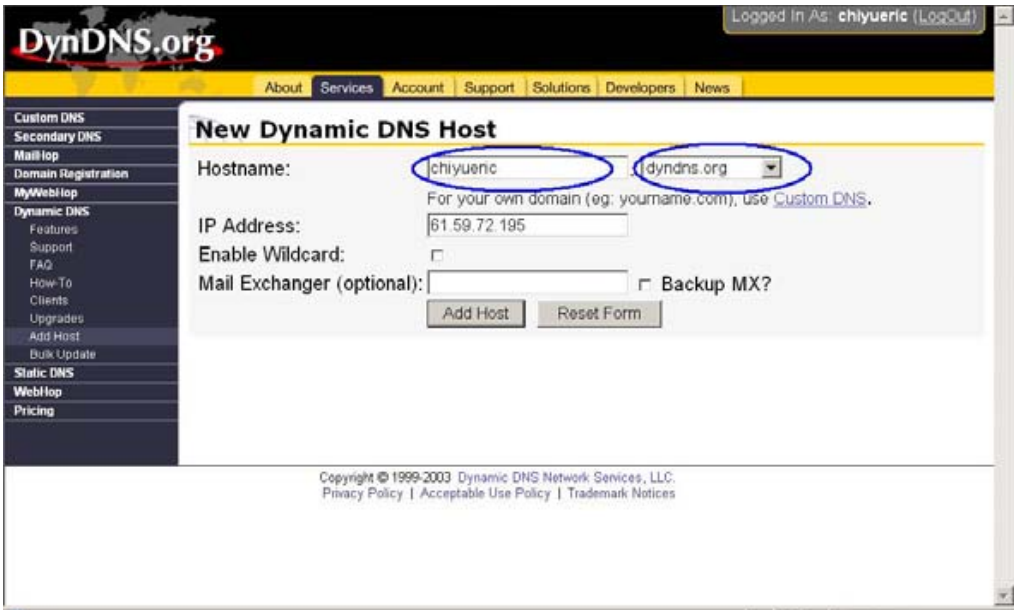
Step 6：select Add Host in the left side of screen.


DynDNS.org
User: chiyueric
Pass:
Login
Lost Password? | Sign Up Now
About
Services
Account
Support
Solutions
Developers
News
Custom DNS
Secondary DNS
MailHop
Domain Registration
MyWebHop
Dynamic DNS
Features
Support
FAQ
How-To
Clients
Upgrades
Add Host
Static DNS
WebHop
Pricing
Dynamic DNS
The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname in any of the many domains we offer, allowing your computer to be more easily accessed from various locations on the Internet. We provide this service, for up to five (5) hostnames, free to the Internet community.
The Dynamic DNS service is ideal for a home website, file server, or just to keep a pointer back to your home PC so you can access those important documents while you're at work. Using one of the available third-party update clients you can keep your hostname always pointing to your IP address, no matter how often your ISP changes it. No more fumbling to find that piece of paper where you wrote down your IP address, or e-mailing all your friends every time it changes. Just tell them to visit yourname.dyndns.org instead!
If you would like to use your own domain name such as yourname.com, you need our Custom DNS service, which also provides full dynamic and static IP address support.
Copyright © 1999-2003 Dynamic DNS Network Services, LLC.
Privacy Policy | Acceptable Use Policy | Trademark Notices

Step 7：Login again with your Username and Password.



Step 8：Enter the Hostname you want to use and select dyndns.org from the drop-down menu, click the button of Add Host to finish register.



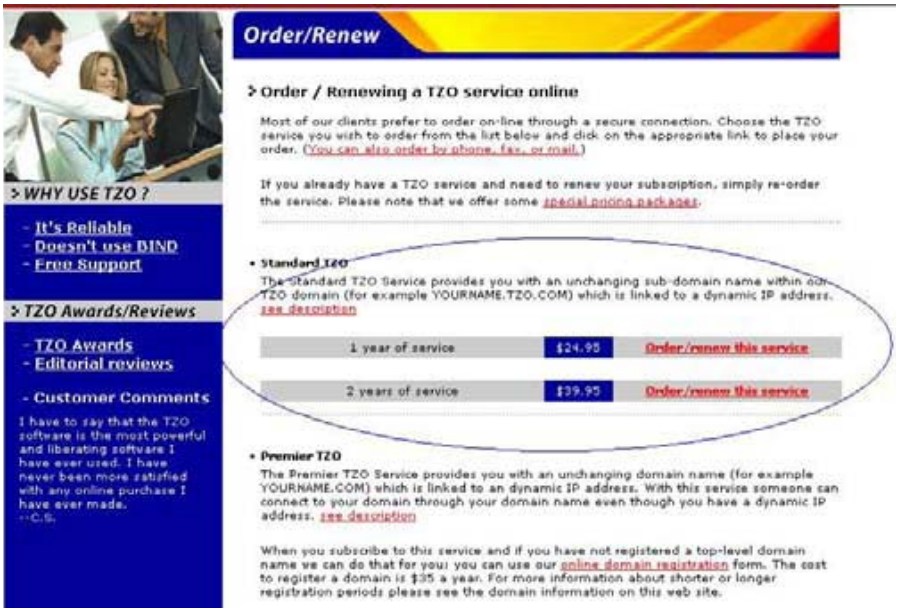
Step 9：now you should enter the Username, Password and Hostname (named Device DNS Name in BF-2300) into BF-2300 to enable this function.

How to register from TZO.com

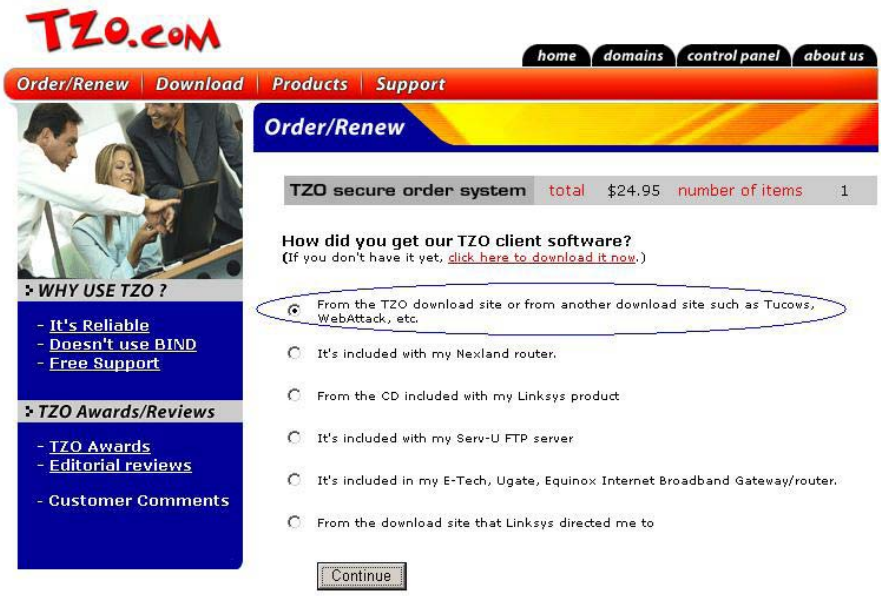
Step 1：Enter the web side www.tzo.com in Browser, select the Order/Renew from top screen.

http://www.tzo.com/index.html
TZO.com
domains
control panel
about us
Order/Renew
Download
Products
Support
the reliable dynamic DNS service
works like a static IP but costs less
TZO software
V 2.1.3
FEATURES
• A Web Server
• A Photo Server
• File Sharing Capability
DOWNLOAD NOW
FREE 30 Day Trial !
WHY USE TZO ?
- It's Reliable
- Doesn't use BIND
- Free Support
TZO is included in these products
Click here to learn more & to sign-up
Reliable dynamic DNS
You can host your own web server, email server, and more even if you have a dynamic IP address! Award-winning TZO service is simple, reliable, and inexpensive.
AutoFailover
AutoFailover monitors your Internet server and when it fails or looses its connection AutoFailover notifies you and sends all server requests to an alternate server.
NEW OMR Service
An answer for the bounced-back email problem.
More
Web Site Design
With Main 11 Design you can have a custom online presence at an affordable price. A full-service design firm, Main 11 will work with you from concept to completion.
Router Information
Download TZO Software
Order TZO Service

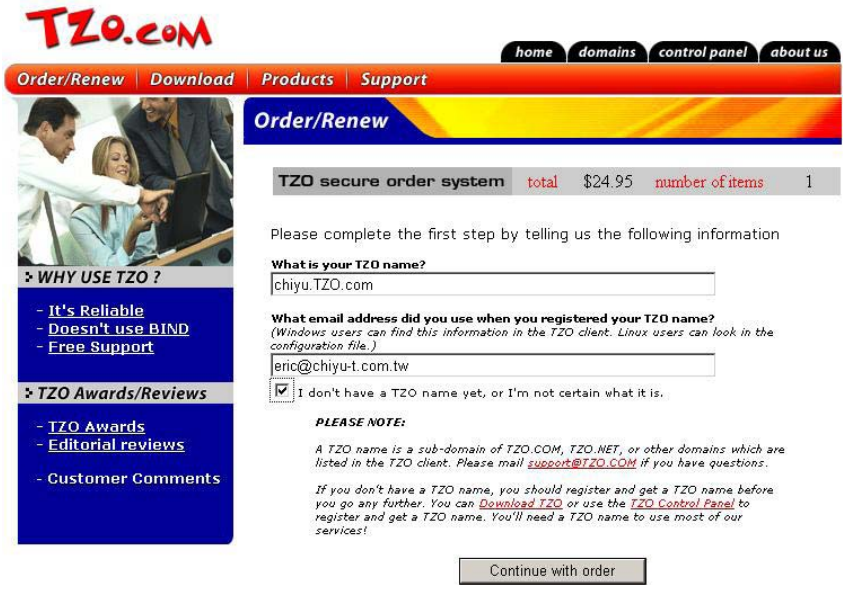
Step 2：You can choice what's kind of service you need, here we suggest the Standard TZO with 1 year of service


Order/Renew
Order / Renewing a TZO service online
Most of our clients prefer to order on-line through a secure connection. Choose the TZO service you wish to order from the list below and click on the appropriate link to place your order. (You can also order by phone, fax, or mail.)
If you already have a TZO service and need to renew your subscription, simply re-order the service. Please note that we offer some special pricing packages.
Standard TZO
The Standard TZO Service provides you with an unchanging sub-domain name within our TZO domain (for example YOURNAME.TZO.COM) which is linked to a dynamic IP address. see description
1 year of service
$24.95
Order/renew this service
2 years of service
$39.95
Order/renew this service
Premier TZO
The Premier TZO Service provides you with an unchanging domain name (for example YOURNAME.COM) which is linked to an dynamic IP address. With this service someone can connect to your domain through your domain name even though you have a dynamic IP address. see description
When you subscribe to this service and if you have not registered a top-level domain name we can do that for you! you can use our online domain registration form. The cost to register a domain is $35 a year. For more information about shorter or longer registration periods please see the domain information on this web site.
WHY USE TZO ?
It's Reliable
Doesn't use BIND
Free Support
TZO Awards/Reviews
TZO Awards
Editorial reviews
Customer Comments
I have to say that the TZO software is the most powerful and liberating software I have ever used. I have never been more satisfied with any online purchase I have ever made.
--C.S.

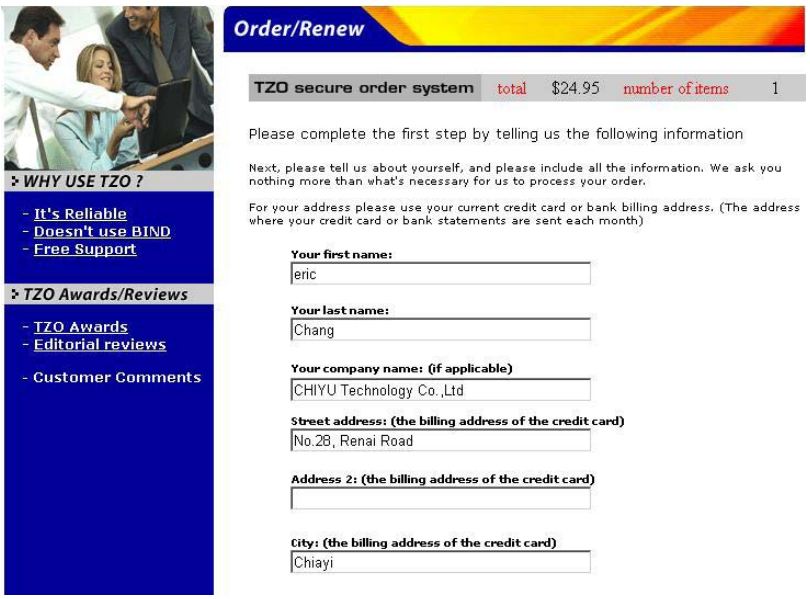
Step 3：Select the first radio button, click Continue button.



Step 4：Enter the TZO name you want to register, such as chiyu.tzo.com, and your E-mail address which can reach you. If you don't have a TZO name yet, please check the box under the field of E-mail address, click Continue with order


TZO.com
home
domains
control panel
about us
Order/Renew
Download
Products
Support
Order/Renew
TZO secure order system
total
$24.95
number of items
1
Please complete the first step by telling us the following information
What is your TZO name?
chiyu.TZO.com
What email address did you use when you registered your TZO name?
(Windows users can find this information in the TZO client. Linux users can look in the configuration file.)
eric@chiyu-t.com.tw
I don't have a TZO name yet, or I'm not certain what it is.
PLEASE NOTE:
A TZO name is a sub-domain of TZO.COM, TZO.NET, or other domains which are listed in the TZO client. Please mail support@TZO.COM if you have questions.
If you don't have a TZO name, you should register and get a TZO name before you go any further. You can Download TZO or use the TZO Control Panel to register and get a TZO name. You'll need a TZO name to use most of our services!
Continue with order
WHY USE TZO ?
It's Reliable
Doesn't use BIND
Free Support
TZO Awards/Reviews
TZO Awards
Editorial reviews
Customer Comments

Step 5：complete the form with your information TZO want.


Order/Renew
TZO secure order system
total
$24.95
number of items
1
Please complete the first step by telling us the following information
Next, please tell us about yourself, and please include all the information. We ask you nothing more than what's necessary for us to process your order.
For your address please use your current credit card or bank billing address. (The address where your credit card or bank statements are sent each month)
Your first name:
eric
Your last name:
Chang
Your company name: (if applicable)
CHIYU Technology Co.,Ltd
Street address: (the billing address of the credit card)
No.28, Renai Road
Address 2: (the billing address of the credit card)
City: (the billing address of the credit card)
Chiayi
WHY USE TZO ?
It's Reliable
Doesn't use BIND
Free Support
TZO Awards/Reviews
TZO Awards
Editorial reviews
Customer Comments

Step 6：TZO will send an e-mail letter to inform your TZO key, please enter these information including E-mail address, TZO key and TZO name (named Device DNS Name in BF-2300) into BF-2300 to enable this service.

◆ Appendix D: Glossary

10BaseT - An Ethernet standard that uses twisted wire pairs.

100BaseTX - IEEE physical layer specification for 100 Mbps over two pairs of Category 5 UTP or STP wire.

Adapter - Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card (NIC) is the typical adapter that allows the PC or server to connect to the intranet and/or Internet.

Auto-MDI/MDIX - On a network hub or switch, an auto-MDI/MDIX port automatically senses if it needs to act as a MDI or MDIX port. The auto-MDI/MDIX capability eliminates the need for crossover cables.

Auto-negotiate - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs, and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

Browser - A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web or PC. The word “browser” seems to have originated prior to the Web as a generic term for user interfaces that let you browse text files online.

Cable Modem - A device that connects a computer to the cable television network, which in turn connects to the Internet. Once connected, cable modem users have a continuous connection to the Internet. Cable modems feature asymmetric transfer rates: around 36 Mbps downstream (from the Internet to the computer), and from 200 Kbps to 2 Mbps upstream (from the computer to the Internet).

CAT 5 - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify “categories” (the singular is commonly referred to as “CAT”) of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

CTS (**C**lear **T**o **S**end) - An RS-232 signal sent from the receiving station to the transmitting station that indicates it is ready to accept data.

Data Packet - One frame in a packet-switched message. Most data communications is based on dividing the transmitted message into packets. For example, an Ethernet packet can be from 64 to 1518 bytes in length.

Default Gateway - The routing device used to forward all traffic that is not addressed to a station within the local subnet.

Download - To receive a file transmitted over a network. In a communications session, download means receive, and upload means transmit.

Dynamic IP Address - An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.

Ethernet - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

DDNS (**D**ynamic **D**omain **N**ame **S**ystem) - Allows a network device with a dynamic Internet IP address to have a fixed host and domain name, such as myhostname.mydomainname.com. It is useful when you are hosting your own website, FTP server, or other server behind a router, so people can find your site no matter how often the Internet IP address changes. Using DDNS requires registering with a DDNS service provider on the Internet.

DHCP (**D**ynamic **H**ost **C**onfiguration **P**rotocol) - A protocol that lets network administrators centrally manage and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet's set of protocol (TCP/IP), each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network. DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. It's especially useful in education and other environments where users change frequently. Using very short leases, DHCP can dynamically reconfigure networks in which there are more computers than there are available IP addresses. DHCP supports static addresses for computers containing Web servers that need a permanent IP address.

DNS - The Domain Name System (DNS) is the way that Internet domain names are located and translated into Internet Protocol (IP) addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

Domain - A sub network comprised of a group of clients and servers under the control of one security database. Dividing LANs into domains improves performance and security.

Firmware - Code that is written onto read-only memory (ROM) or programmable read-only memory (PROM). Once firmware has been written onto the ROM or PROM, it is retained even when the device is turned off.

Full Duplex - The ability of a device or line to transmit data simultaneously in both directions.

Gateway – A device that interconnects networks with different, incompatible communications protocols.

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the “box” and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

Hub - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

HTTP (**H**yper**T**ext **T**ransport Protocol) - The communications protocol used to connect to servers on the World Wide Web. Its primary function is to establish a connection with a Web server and transmit HTML pages to the client browser.

MAC Address - The MAC (Media Access Control) address is a unique number assigned by the manufacturer to any Ethernet networking device, such as a network adapter, that allows the network to identify it at the hardware level.

Mbps (**M**ega**B**its **P**er **S**econd) - One million bits per second; unit of measurement for data transmission.

IP Address - In the most widely installed level of the Internet Protocol (IP) today, an IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received.

IPCONFIG - A utility that provides for querying, defining and managing IP addresses within a network. A commonly used utility, under Windows NT and 2000, for configuring networks with static IP addresses.

ISP - An ISP (Internet service provider) is a company that provides individuals and companies access to the Internet and other related services such as website building and virtual hosting.

Packet - A unit of data routed between an origin and a destination in a network.

Network Mask - Also known as the “Subnet Mask.”

NIC (**N**etwork **I**nterface **C**ard) - A board installed in a computer system, usually a PC, to provide network communication capabilities to and from that computer system. Also called an adapter.

RJ-45 - A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

Server - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (**S**imple **M**ail **T**ransfer **P**rotocol) - The standard e-mail protocol on the Internet. It is a TCP/IP protocol that defines the message format and the message transfer agent (MTA), which stores and forwards the mail.

Ping (**P**acket **IN**ternet **G**roper) - An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.

Port - A pathway into and out of the computer or a network device such as a switch or router. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems, and printers.

PPPoE (**P**oint to **P**oint **P**rotocol **o**ver **E**thernet) - PPPoE is a method for the encapsulation of PPP packets over Ethernet frames from the user to the ISP over the Internet. One reason PPPoE is preferred by ISPs is because it provides authentication (username and password) in addition to data transport. A PPPoE session can be initiated by either a client application residing on a PC, or by client firmware residing on a modem or router.

Subnet Mask - The method used for splitting IP networks into a series of subgroups, or subnets. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets.

TCP (**T**ransmission **C**ontrol **P**rotocol) - A method (protocol) used along with the IP (Internet Protocol) to send data in the form of message units (datagram) between network devices over a LAN or WAN. While IP takes care of handling the actual delivery of the data (routing), TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient delivery over the network. TCP is known as a “connection oriented” protocol due to requiring the receiver of a packet to return an acknowledgment of receipt to the sender of the packet resulting in transmission control.

TCP/IP (**T**ransmission **C**ontrol **P**rotocol/**I**nternet **P**rotocol) - The basic communication language or set of protocols for communications over a network (developed specifically for the Internet). TCP/IP defines a suite or group of protocols and not only TCP and IP.

Telnet - A terminal emulation protocol commonly used on the Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

TFTP (**T**rivial File **T**ransfer **P**rotocol) - A version of the TCP/IP FTP protocol that has no directory or password capability.

Static IP Address - A permanent IP address that is assigned to a node in a TCP/IP network.

]

◆ Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter

This section describes how to find the MAC address for your computer's Ethernet adapter so you can use the MAC address change feature of the BF-2300. You can also find the IP address of your computer's Ethernet adapter. This IP address is used for the BF-2300's configuration. Follow the steps in this appendix to find the adapter's MAC or IP address in Windows 98, Me, 2000, or XP.

1. Click **Start** and **Run**. In the Open field, enter **cmd**. Press the **Enter** key or click the **OK** button.
2. At the command prompt, enter **ipconfig /all**. Then press the **Enter** key.
3. Write down the Physical Address as shown on your computer screen (Figure D-1); it is the MAC address for your Ethernet adapter. This appears as a series of numbers and letters.

The MAC address/Physical Address is what you will use for MAC address changing.

The example in Figure D-1 shows the Ethernet adapter's IP address as 192.168.168.100. Your computer may show something different.

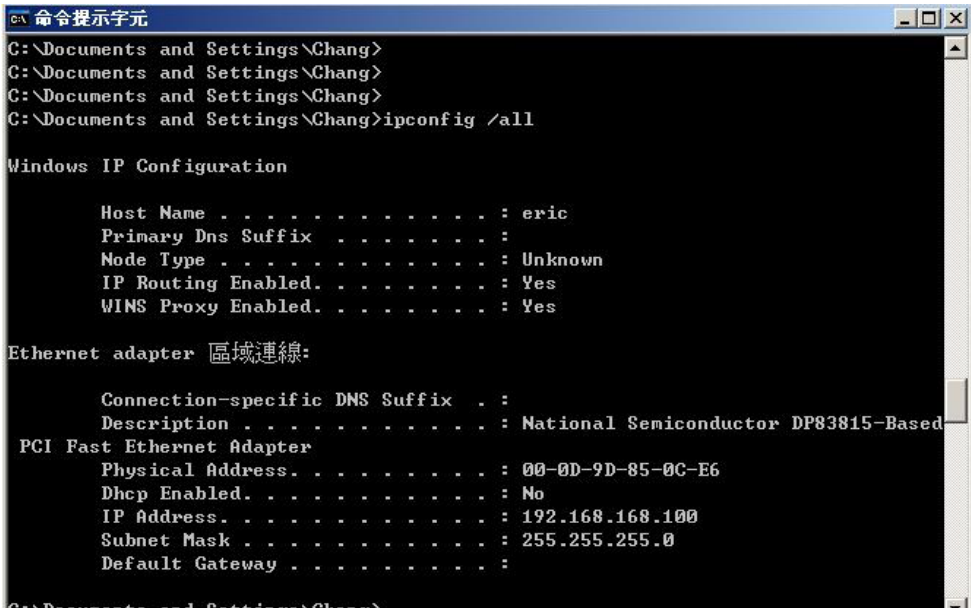

命令提示字元
C:\Documents and Settings\Chang>
C:\Documents and Settings\Chang>
C:\Documents and Settings\Chang>
C:\Documents and Settings\Chang>ipconfig /all
Windows IP Configuration
Host Name . . . . . : eric
Primary Dns Suffix . . . . . :
Node Type . . . . . : Unknown
IP Routing Enabled. . . . . : Yes
WINS Proxy Enabled. . . . . : Yes
Ethernet adapter 區域連線:
Connection-specific DNS Suffix . :
Description . . . . . : National Semiconductor DP83815-Based
PCI Fast Ethernet Adapter
Physical Address. . . . . : 00-0D-9D-85-0C-E6
Dhcp Enabled. . . . . : No
IP Address. . . . . : 192.168.168.100
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Figure E-1 MAC Address/Physical Address